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CULTURAL RESOURCES TECHNICAL REPORT

Anaconda Nevada Moly Project

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CULTURAL RESOURCES TECHNICAL REPORT

Support Document for the

Draft Environmental Impact Statement

Anaconda Nevada Moly Project

Lead Agency

U.S. Department of the Interior
Bureau of Land Management
Nevada State Office
P. O. Box 12000
Reno, Nevada 89520

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Prepared by

ENVIRONMENTAL RESEARCH & TECHNOLOGY, INC.
FORT COLLINS, COLORADO

PREFACE

The Anaconda Copper Company of Denver, Colorado, plans to develop an open pit molybdenum mine and flotation mill plant on privately owned land and public land on which the company has located mining claims under the general mining laws, approximately 18 miles north of the town of Tonopah in Nye County, Nevada. In order to supply power to the Anaconda project, Sierra Pacific Power Company of Reno, Nevada, has filed with the U.S. Bureau of Land Management (BLM) an application for a right-of-way to construct and operate a 230kv electric transmission line which would cross 86 miles of public land in the Big Smoky Valley in Nye and Lander Counties. Sierra Pacific's right-of-way application initiated BLM's environmental analysis process and the decision was made to prepare an Environmental Impact Statement (EIS) on the proposed transmission line and the Anaconda mine/mill complex. The EIS is being prepared on a contract basis by Environmental Research & Technology, Inc. (ERT), of Fort Collins, Colorado.

This report was prepared by ERT as a preliminary step in the EIS preparation process. The report provides detailed information on the cultural resources of potentially affected areas and discusses the impacts of the proposed project on these resources.

The cultural resources report is one of a series of ten technical reports prepared by ERT as background and documentary material for the EIS. Each report presents the results of field and literature studies in the affected environments and results of impact analyses. The technical reports are intended as background documents and information in them is, in many cases, considerably more detailed than will be included in the EIS.

Chapter 1, "Alternatives Including the Proposed Action", can be found in the Draft Environmental Impact Statement which is on file with copies of the technical reports at the following locations: BLM offices in Washington, D.C.; Reno; Battle Mountain; Carson City; Elko; Ely; Las Vegas; and Winnemucca, Nevada. The following public libraries will also receive copies: the Churchill Public Library, Fallon; Clark County Library, Las Vegas; the Elko County Library, Elko; the Esmeralda County Library, Goldfield; the Eureka County Library, Eureka; the Lander County

Library, Battle Mountain; the Mineral County Library, Hawthorne; the Nevada State Library, Carson City; the Nye County Library, Tonopah; the Washoe County Library, Reno; and the White Pine County Library, Ely. Draft EISs will also be sent to the University of Nevada Libraries in Reno and Las Vegas.

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INTRODUCTION

Study Objectives

At the request of the Anaconda Company, Environmental Research & Technology, Inc. (ERT) undertook a cultural resources survey of property that includes the location of the proposed Hall Molybdenum Mine, adjacent claim blocks and powerline corridors. The field investigations were subcontracted to Nevada State Museum, and work was completed in 1978 and 1979.

The cultural resource survey sought to identify both prehistoric and historic sites within the project properties. Potentially affected sites in the surrounding area were also considered during the investigation. Although not specifically within the areas potentially affected by the proposed project, the increase of personnel particularly at the mine site could result in visitation and possible disturbance of prehistoric and historic sites within the immediate vicinity. Thus, the study was designed so that all direct or indirect impacts on cultural resources could be evaluated. With these impacts considered, appropriate recommendations from the perspective of the project's overall environmental consequences can best be addressed.

Detailed maps showing the locations of cultural resources identified during the investigations are not included in the report in order to offer appropriate protection to these resources. The locations of the sites are on file with the Bureau of Land Management, Nevada State Museum, and Nevada State Historical Preservation Officer.

Please note that Nevada Highway 8A was renumbered as Highway 376 during the study and that both designations may appear in the document.

Project Area and Survey Design

Mine/Mill Complex

The designated mine/mill complex covers terrain located between 20-25 miles north of Tonopah, Nevada, on the western slopes and alluvial plain of the San Antonio mountains. The contrasting landscapes within the project area are determined by its topography and corresponding environmental features. The eastern section contains the foothills of the San Antonio mountains at elevations ranging from 5,900 to

6,600 feet. The western portions extend from the foothills out across the alluvial plain to a minimum elevation of 5,200 feet at the project area's southwest corner. These two terrains required separate survey strategies reflecting their relative accessibility. To identify as many sites as possible in the most efficient manner, parallel transects were surveyed by field technicians walking at designated intervals. For the alluvial plain, Stratum 1, the ground surface was examined at 50 meter intervals. The foothills area of Stratum 2 was initially surveyed at 60 meter intervals (Section 5, T5N, R42E) but the absence of any cultural materials and difficulty of access suggested that inspection of dry creeks, ridgetops, saddles and areas of lowest relief would most likely disclose materials in the remaining Stratum 2 terrain. With one exception, however, the foothills were devoid of prehistoric materials.

These combined survey strategies are those customarily used for the different terrains encountered in the region and conform to the survey practices used on BLM managed lands.

In cases where sites were identified, the surrounding area was systematically surveyed to specify the artifact distribution and to determine the surface extent of the site. All sites with fewer than 20 artifacts were collected, photographed, mapped and flagged. Although no subsurface excavations were made, naturally occurring subsoil exposures were examined. All cultural material was recorded on standard archeological site forms and curated by the Nevada State Museum according to methods acceptable to the BLM.

Powerline Corridors

The proposed 230 KV powerline corridor extends northward from the northwest corner of the mine site property along the eastern margin of the Big Smoky Valley, crossing property under BLM jurisdiction. The corridor terminus is located in Rye Patch Canyon, northeast of Austin, at the intersection of an existing powerline corridor. A substation would also be located at this intersection. At the time of survey, the entire proposed route's centerline was marked with conventional survey stakes approximately every one-half mile. These served as reference points for the two-person survey crews who inspected the route to its full width of 120 feet (BLM Class III level survey), for a total of 1189 acres. At the request of the BLM Battle Mountain District Archeologist, Ms. Roberta McGonagle, no artifacts were collected. Instead the location of each site or isolated artifact was marked with a small state and/or flagging and diagnostic artifacts recorded with appropriate drawings. Survey activities covered a period from October 28 through November 15, 1979.

The alternative powerline corridor separates from the proposed corridor south of Round Mountain and generally parallels Highway 376 for a total length of 69 miles. Since no portion of the alternative route was staked it was only possible to conduct a cultural resources survey for the segment which directly paralleled Highway 376. For portions of the route parallel to the road, the corridor width for the project planning purposes is considered 500 feet either side of 376; for other segments it is considered 120 feet. Since BLM requested that a Class II (reconnaissance) survey be performed for the alternative, 100 feet either side of 376 were surveyed (1454). Total acreage covered for the alternative route was 2,919 or 19% of the total alternative route area (7,653 acres).

Contributors and Agency Coordination

The overall direction and coordination of the Hall Mine cultural resources study was the responsibility of Dr. Jeffrey C. Howry, Senior Anthropologist at ERT. The principal field work was conducted by the Nevada State Museum under the direction of Ms. Mary Rusco (Rusco and Clerico 1979) and Ms. Sue Ann Monteleone (Rusco and Monteleone 1979).

A preliminary literature review was also performed by the Museum, and a report prepared by Ms. Evelyn Seelinger (Seelinger 1978). Fieldwork commenced at the mine site during the summer of 1978 and was completed in the spring of 1979. Fieldwork for the powerline corridors was performed during October and November 1979. Survey work on BLM properties was conducted under Federal Antiquities Permit No. 77-NV-097.

During ERT's site evaluation, Dr. Howry reviewed the project and its approach with Nevada agency personnel concerned with the cultural resource aspects of this study. Individuals contacted included Ms. Nancy Botti, Mr. Robert York, and Mr. Richard Hanes, BLM archeologists at Reno, Dr. Roberta McGonagle, BLM Battle Mountain District Archeologist, Mr. Sam Ball, BLM Archeologist for the Tonopah area and Mr. Charles Zeir, State Archeologist, Division of Historic Preservation and Archeology. Special assistance was provided by Mr. John Townly of the Nevada Historical Society who shared some of his unpublished research on the San Antonio distirct. Mr. Don Cameron, Anaconda geologist, provided assistance at the mine site, particularly by supplying off-road vehicle transportation to the more remote portions of the Anaconda project property.

CHAPTER 1

ALTERNATIVES INCLUDING THE PROPOSED ACTION

(Refer to the Draft Environmental Impact Statement)

2. AFFECTED ENVIRONMENT

PREHISTORY[1]

Regional Environment and Prehistory

The proposed mine/mill complex will be located on the western slopes of the San Antonio mountains and extend onto the adjacent alluvial plain, part of the Big Smoky Valley. During the late Pleistocene period (8000-12000 B.P.) significantly more vegetation was present because of greater surface water in the surrounding region. Approximately 10 miles southwest of the proposed site Lake Tonopah provided an extensive aquatic habitat. Peavine Creek, the recipient of seasonal runoff from the San Antonio mountains, was the major tributary supplying Lake Tonopah. The present stream drainages through the Hall Mine property feed Peavine Creek to the west and transect the early lake's beach ridges at 4770 and 4800 feet. The early environment of channels, ponds and marshes would have provided flora and fauna sought by indigeous inhabitants of the area (Thomas 1977).

For the past 6,000 years the overall environment of the Big Smoky Valley has been moderately stable, although relatively arid. Average rainfall is currently less than 4 inches per year and occurs during winter months. Vegetation is of the salt desert shrub varieties, including greasewood, cholla, hopsage, rabbitbrush, sagebrush and rice grass. Fauna observed during the survey included bobcat as well as rabbit and bird species typical of the area. Some pinon and juniper are present at higher elevations.

The only semi-permanent water sources in the vicinity of the Hall Mine are located approximately 5 miles to the southeast at Liberty Springs or 10 miles northwest at Indian Springs (San Antonio Ranch site).

The lifeways of Great Basin inhabitants, of which southern Nevada forms a part, remained largely unchanged for several thousand years prior to the arrival of American and European settlers in the mid-19th century. At this time small family groups of Western Shoshone occupied the area. These small and mobile groups moved from one area to another hunting or collecting the resources seasonally available in the small valley or mountain micro-environments. These included plant foods such as berries, seeds, seed grasses and (pinenuts) roots or game like antelope and rabbits (Steward 1938). The closest semi-permanent settlements were north on Peavine Creek, near the mouth of a canyon in the foothills of the Toiyabe Mountains, at Darraugh's Hot Springs and at Millett's Ranch. In general, the recent indigeuous population of the Big Smoky Valley was relatively sparce compared to the general Great Basin region (Steward 1938; 100-110).

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[1] Documentation contained in this section is excerpted from an Archeological and Records Search prepared by Ms. Evelyn Seelinger, 1978 and Hall Mine Survey Final Report prepared by Ms. Mary Rusco and Ms. Cheryl Clerico, 1979, Nevada State Museum, Carson City, Nevada.

Prior prehistoric research in the mine site vicinity is limited. Two previous surveys south of the proposed mine focused on the Lake Tonopah area (Cambell 1949, Thomas 1977). Several of the sites identified date from before 8,000 B.P. (6,000 B.C.) and are associated with the "paleo-Indian" occupation during the late Pleistocene era described earlier. Closer to the study area are a series of sites in the vicinity of Liberty Springs, approximately five miles southeast of the mine/mill complex. Sites around the springs are associated with a broad period of occupation including the Great Basin Archaic period spanning the years from 2000 B.C. - 200 A.D.). The presence of these sites at the springs established the use of these limited water resources over an extended period of time (McGonagle and Waski 1978).

The upper portion of the Big Smoky Valley, through which the powerline corridors pass, lies between the Toiyabe Range to the west and the Toquima Range to the east. The distinctive feature of the valley is the broad "Alkali Flat," a remnant geological feature once part of a much larger post-pleistocene pluvial lake bed. At its maximum extent, Lake Toiyabe extended to an elevation of approximately 5,585 feet within the valley basin (Mifflin & Wheat 1979:53). The location of the previous lake shore bears a relationship to the valley's prehistory because the region's early occupants likely used the resources of the aquatic environment and probably camped on the lake's perimeter. Of the two powerline corridors, the alternate route on the valley's west side along Highway 376 intersects most closely with the early beach shorelines.

Today there are relatively few sources of permanent water in the Big Smoky Valley. The greatest concentration is on the valley's western perimeter where seismic faulting has exposed more of the basin's aquifers to produce springs, including geothermal pools. Seasonal run-off from the adjacent mountains intermittent sources through numerous drainages leading to the valley floor.

Prehistoric Survey Results

Mine/Mill Complex

A total of 23 prehistoric sites were identified, of which 22 were located on the alluvial fan west of the San Antonio Mountains and below an elevation of 5,900 feet. Table 2-1 provides a summary description of these sites. Sites identified consisted of quanties of scattered lithic material (obsidian, opalite and chert) representing single activity locations. Evidence of a possible campsite was found at one site (26Ny1902) which contained fire blackened rock and ashy sand suggesting a hearth may have been present. Artifacts present included 18 flakes of obsidian, jasper, white and pink chert and opalite.

Diagnostic artifacts were recovered from only two sites, 26Ny1321 and 1904. They are both projectile points probably of the Elko series dating from approximately 2000 B.C. - 200 A.D. A third tool, a drill fragment recovered from 26Ny1310, may have been fabricated from a previously produced Elko point. A single metate, used for preparing plant food, was located at 26Ny1905 on the alluvial fan west of the gully leading to Liberty Springs. Both locales contain diagnostic material of the Elko series, reflecting possible contemporaneous use of both the spring and adjacent alluvial terrain.

A number of sites cluster along either side of the 5,800 foot contour, approximately a half mile west of the abrupt rise of foothills to the San Antonio mountains. One explanation for this possible pattern is the relationship of sites to existing water sources. As in most arid regions, trails frequently connect critical water sources that could be depended upon from season to season. The prehistoric sites located on the western alluvial plain are in a direct line between Liberty Springs to the south and Indian Springs to the north (located adjacent to San Antonio Ranch). The distribution of sites observed on the alluvial plain could therefore be partially explained by their relationship to access the critical water resources.

Table 2-1

Sites in the Mine/Mill Complex Area

	Site #	Elevation	Size	Artifacts and Features
Prehistoric	Ny1902	5720'	$20m^2$	17 flakes; 1 possibly utilized flake; ashy sand, fire-blackened soil exposed by rodent burrow.
"	Ny1898	5250'	$25m^2$	19 flakes, all apparently from 3-4 obsidian cobbles. No EU's.
"	Ny1305	5550'	$<1m^2$	1 large grey chert utilized flake.
"	Ny1306	5625'	$<1m^2$	Biface fragment.
"	Ny1307	5602'	$<4m^2$	2 flakes from obsidian cobble.
"	Ny1308	5620'	$<1m^2$	1 utilized flake, white opalite.
"	Ny1309	5700'	$160m^2$	1 biface fragment, opalite, 2 flakes.
"	Ny1310	5850'	$<1m^2$	1 white chert drill fragment.
"	Ny1319	5650'	$<1m^2$	1 large cortex-backed utilized flake (1 EU), obsidian.
"	Ny1320	5640'	$<1m^2$	1 small obsidian core or biface fragment.
"	Ny1321	5660'	$140m^2$	1 projectile point - Elko? series, white opalite 1 large jasper flake, 2 EUs; 1 small obsidian.
"	Ny1322	5800'	$<1m^2$	1 obsidian flake (probably utilized)
"	Ny1323	5700'	$800m^2$	2 flakes from obsidian cobble, 2 EUs each. 3 large flakes - no apparent EUs.
"	Ny1324	5740'	$<1m^2$	1 small obsidian core fragment.
"	Ny1325	5740'	$600m^2$	1 obsidian flake; 8 opalite flakes or sherds, apparently thermally altered.
"	Ny1899	5400'	$<1m^2$	1 thick flake from biface edge, 1 EU, obsidian.
"	Ny1900	5284'	$<1m^2$	1 small obsidian flake, no EU.
"	Ny1901	5540'	$<1m^2$	1 small biface fragment, white opalite.
"	Ny1903	5700'	$<3m^2$	2 obsidian flakes, no EU's.
"	Ny1904	5710'	$<1m^2$	Large point fragment, Elko? series, grey chert.
"	Ny1905	5600'	$<1m^2$	Metate (not collected).
"	Ny1906	5760'	$<1m^2$	Large point midsection, white opalite.
"	Ny1907	6480'	$<1m^2$	1 small biface? fragment, white opalite.
Historic	Ny1311	5900'	$<1m^2$	Sherds of drinking glass (amethyst).
"	Ny1312	6560'	$<1km^2$	3 stone foundations; 1 associated with mine shaft midden: various glass, ceramics, metal artifacts.

Powerline Corridors

Proposed Route

A total of 10 small sites were located on the proposed powerline Table 2-2). Six of the sites consist of a single artifact and therefore indicate that a single task was likely performed at each location. The four remaining small sites consist of at least a single tool and a scatter of flakes or other lithic debris. These sites may represent activities of more extended duration but are also a transient activity lcoation.

Alternate Route

Nineteen sites along the alternate route are for the most part, very small, single task locations (Table 2-3). At least three other sites indicating extensive occupations are found within the alternate corridors along Highway 376 - 26Ny 563, 26Ny 2031, and 26La 932. The first two sites are within three miles of one another and are bisected by the corridors on both sides of Highway 376. The third is adjacent to the eastern corridor along Highway 376.

Conclusions

Mine/Mill Complex

The prehistoric sites identified by the mine survey represent transient activities by single individuals or small family groups who intermittantly used the area for its resources. The materials recovered suggest that most activities in the mine/mill vicinity involved hunting, since the lithic remains are most closely associated with tools produced for that activity. These include projectile points, a drill and small chert opalite or obsidian flakes. At one site, 26Ny1905, a metate fragment was located indicating that vegetable or seed resources may have been sought in the immediate area.

The period of time represented by the recovered prehistoric materials extends to approximately 200 B.C. but may also include the activities of Shoshone groups who occupied the Big Smoky Valley in recent historic times. However, no diagnostic materials were recovered which can firmly establish use of the Hall Mine vicinity by these recent indigenous people.

TABLE 2-2

Cultural Resources within the Proposed Powerline Corridor

Prehistoric Site Number	Site Type	Size	Elevation	Distance from Water	Other Significant Associations
26Ny2014	Task site	one artifact	6020 ft.	2.5 mi to spring	
2016	"	small	5840 ft.	4 mi. to mtn.streams	
2017	"	one artifact	5920 ft.	200 m to Barker Cr.	
2018	"	one artifact	5920 ft.	immediate-Barker Cr.	
2019	"	one artifact	6080 ft.	3.5 mi. to spring	
2033	"	one artifact	6000 ft.	2.5 mi. to spring	
26La1168	Task site	small	5581 ft.	3 mi to spring;	Possible playa association
1169	"	one artifact	5630 ft.	2.75 mi-Spencer Hot Spring;	Possible playa association
1170	"	small	5850 ft.	3 mi. to spring	
1171	"	small	6000	2 mi. to spring	
Historic					
26Ny2015	Dump	small	5980 ft.	1.75 mi. to spring	Round Mountain mining area (1905)

TABLE 2-3

Cultural Resources within the Alternate Powerline Corridor

Prehistoric Site Number	Site Type	Size	Elevation	Distance from Water	Other Significant Associations
26La1188	task site	very small	5768 ft.	2 km	
La 933	task site	very small	5640 ft.	on site	near wetlands
La1189	task site	very small	5660 ft.	20 m	
La 932	settlement	large	5660 ft.	on site	near wetlands
La1190	task site	very small	5665 ft.	200 m	
La1191	task site	very small	5760 ft.	2 km	
La1192	task site	very small	5760 ft.	--	
La1193	task site	very small	5850 ft.	--	
Ny2020	task site	very small	5525 ft.	--	
Ny2021	task site	very small	5600 ft.	1 km	
Ny2022	task site	very small	5600 ft.	1.5 km	
Ny2023	camp/task	small	5520 ft.	.5 km	
Ny2024	task site	very small	5530 ft.	on site	
Ny2025	task site	very small	5580 ft.	200 m	
Ny2026	task site	very small	5600 ft.	300 m	
Ny2027	task site	very small	5580 ft.	--	
Ny2028	task site	very small	5580 ft.	--	
Ny2029	task site	very small	5670 ft.	.5 km	
Ny2030	task site	very small	5700 ft.	1 km	
Ny2031	settlement	large	5640-80 ft.	on and near site	less than 2 km from other springs
Ny2032	task site	very small	5720 ft.	.8 km	
Ny 563 *	settlement	large	5640-5720 ft.	on and near site	less than 2 km from other springs

* recorded by previous survey

Powerline Corridors

Proposed Route

Prehistoric use of the terrain covered by the proposed powerline corridor was minimal. Materials identified indicate only occasional, intermittent visitation to the project areas.

Alternate Route

Prehistoric occupation along selected segments of the alternate corridors adjacent to Highway 376 was considerable when compared to known extent of valley habitation. Three areas, which at certain points extend for more than a mile, contain evidence of significant repeated occupation.

HISTORY

Western Mining and Southern Nevada

One of the most significant events in western mining history, and in Nevada specifically, occurred when the Comstock Lode was discovered in 1859 at Virginia City. Most of the prospectors arriving during the 1860's were from California and the placer mining camps proved unsuccessful (St. Clair 1977:27). A partial result was the settlement of territories further east in the previously unexplored mountain regions. In this manner central and sourthern Nevada were first settled.

The origin of the first prospectors who entered the Tonopah region is uncertain. One early source claims that Mexicans first discovered lead and antimony ore in the San Antonio Mountains in 1863 (Thompson & West 1881:518). Unrecovered Mexican propectors probably preceded Anglos in southern Nevada, as they had already settled in areas to the south and west. However, earliest written accounts state that men named Robles and Fisk first discovered precious ores in the San Antonio mountains during Oct. 1863 (Lincoln 1923: 181-182). The earliest existing document on the immediate area is a report of R.W. Raymond, a U.S. Government Mine inspector, who visited the area in 1868 as part of a mine survey (Raymond 1868, 1870). From the written accounts of Mr. Rigby, then owner of the Liberty Mine, Raymond reviewed the documentation that established the San Antonio Mining District on November 1, 1863. Mr. Rigby was both Recorder and Superintendent of the district. Raymond's account describes the mining district as extending 50 miles east of Indian Springs (the location of San Antonio Ranch) and 100 miles west. Its northern boundary was the Marysville District, 150 miles distant. Nevada mining districts of the early 1860's possessed considerable independence because they preceded Federal mining legislation enacted later to limit mineral claims in states and territories. The San Antonio District even preceded the government survey and platting of the territory.

The early history of the mining district is closely connected with the development of the Liberty Mine, located on claims directly adjacent to the proposed mine/mill complex. In 1864 an estimated 200 miners were reportedly working at the mine (Berg 1942:42 from Bancroft Scraps). However, this figure may also include the San Antonio mine further north and could be exaggerated by the original source. In 1865 Hunt's Mill with 10 ore stamps was erected at San Antonio station, approximately

10 miles northwest of the Liberty Mine. Also at San Antonio Station a two-story, 15 room adobe structure was built to accommodate travelers to the mines (Carlson 1974:209). The Station was selected for constructing both these facilities because of an existing water supply, recognized locally as Indian Springs (Berg 1942:42).

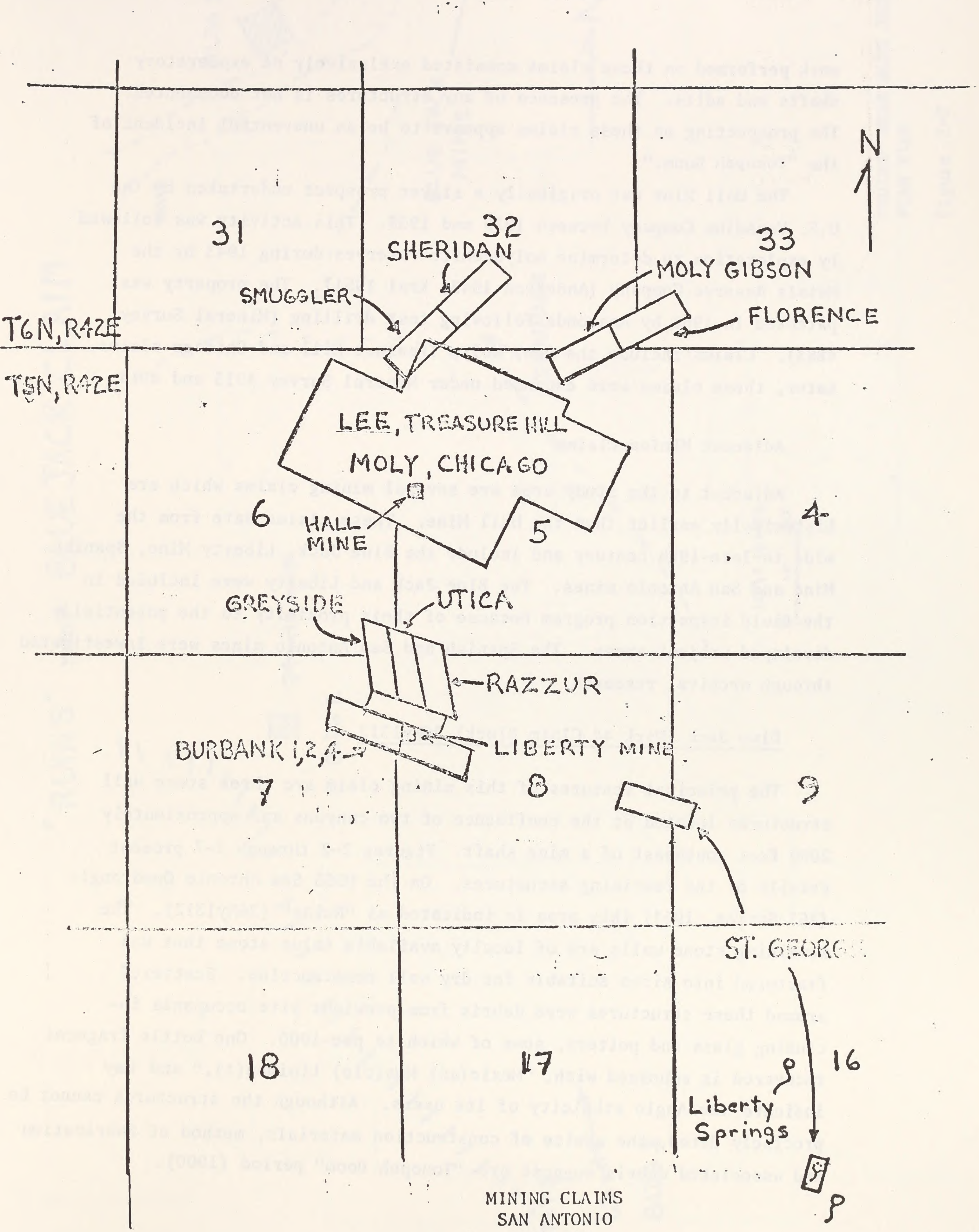
Hunt's 10-stamp mill operated for only one year and was succeeded by the 4-stamp Rigby mill in 1867. Operations continued at least through 1868. A local newspaper reported in February, 1868 that 4000 ounces (250 pounds) of bullion were produced by the Rigby Mill (Berg 1942:42). Although the total value of ore produced during 1867-68 exceeded $72,000 (Raymond 1970:144), some ore may have been processed from the San Antonio mines, northeast of the Liberty mine. Limited work continued for a few years until lower ore values and, possibly, undesirable mine gases at lower levels (Raymond 1868) resulted in abandonment.

San Antonio Ranch became a post office in 1873 and probably continued as a watering spot for camel trains transporting salt from Columbus Marsh to the South. However, the San Antonio district remained largely inactive until silver was discovered at Tonopah in 1900. A turn-of-the century boom town developed to the south with a population reaching 10,000 during the first decade. The Tonopah railroad was completed in 1904 enabling cheap transportation of ores to the west coast. Simultaneously several large stamp mills were constructed around Tonopah. Production values of these mills climbed from $8.1 million in 1911 to $120.5 million in 1921. (Paher 1978:14). A brief period of activity occurred at the Liberty Mine during 1909-10 (Liberty Mine 1909-10 Ms.) as part of the boom, but efforts were soon abandoned again.

Mining Claims History on the Mine/Mill Complex and Adjacent Properties

Mine/Mill Study Area

The advent of the "Tonopah Boom" produced land speculation and renewed prospecting in the San Antonio Mountains. In the mine/mill complex vicinity four claims were surveyed (1901) and patented (1903) by T.C. Mondes and G.H. Phillips. Figure 2-1 illustrates the location of these claims in relation to the overall study area and adjacent patented claims. Review of mineral survey notes and plat sheets indicate the



MINING CLAIMS
SAN ANTONIO
DISTRICT
1966

Figure 2-1

work performed on these claims consisted exclusively of exploratory shafts and adits. The presence of any structures is not documented. The prospecting on these claims appears to be an uneventful incident of the "Tonopah Boom."

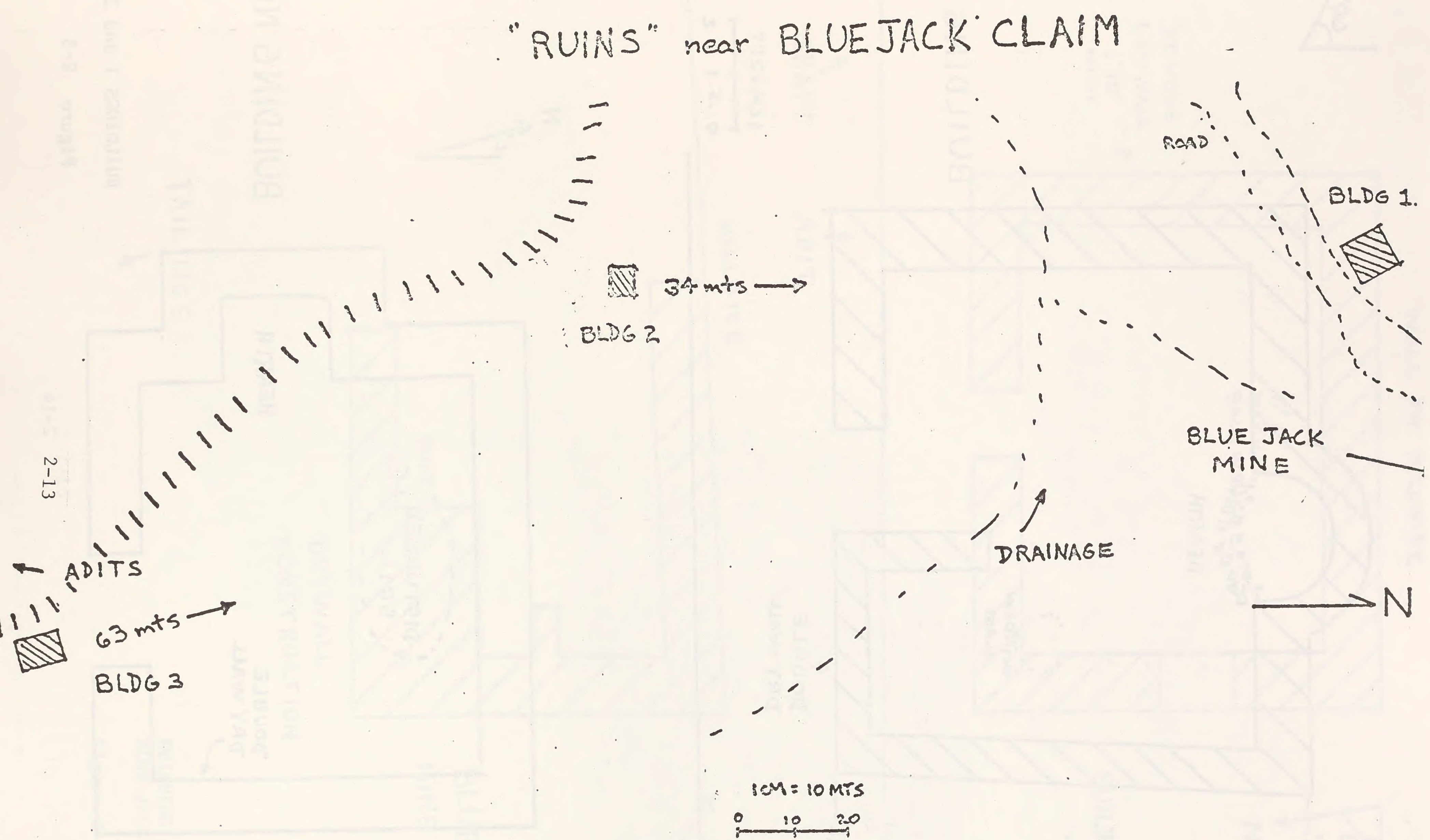
The Hall Mine was originally a silver prospect undertaken by the U.S. Vanadium Company between 1935 and 1938. This activity was followed by exploration to determine molybdenite reserves during 1943 by the Metals Reserve Company (Anderson 1943, Kral 1951). The property was patented in 1966 by Anaconda following test drilling (Mineral Survey 4883). Claims include the Lee, Moly, Treasure Hill and Chicago claims. Later, these claims were expanded under Mineral Survey 4913 and 4914.

Adjacent Mining Claims

Adjacent to the study area are several mining claims which are historically earlier than the Hall Mine. These claims date from the mid- to late-19th century and include the Blue Jack, Liberty Mine, Spanish Mine and San Antonio mines. The Blue Jack and Liberty were included in the field inspection program because of their proximity to the potentially developed project areas. The Spanish and San Antonio mines were investigated through archival research.

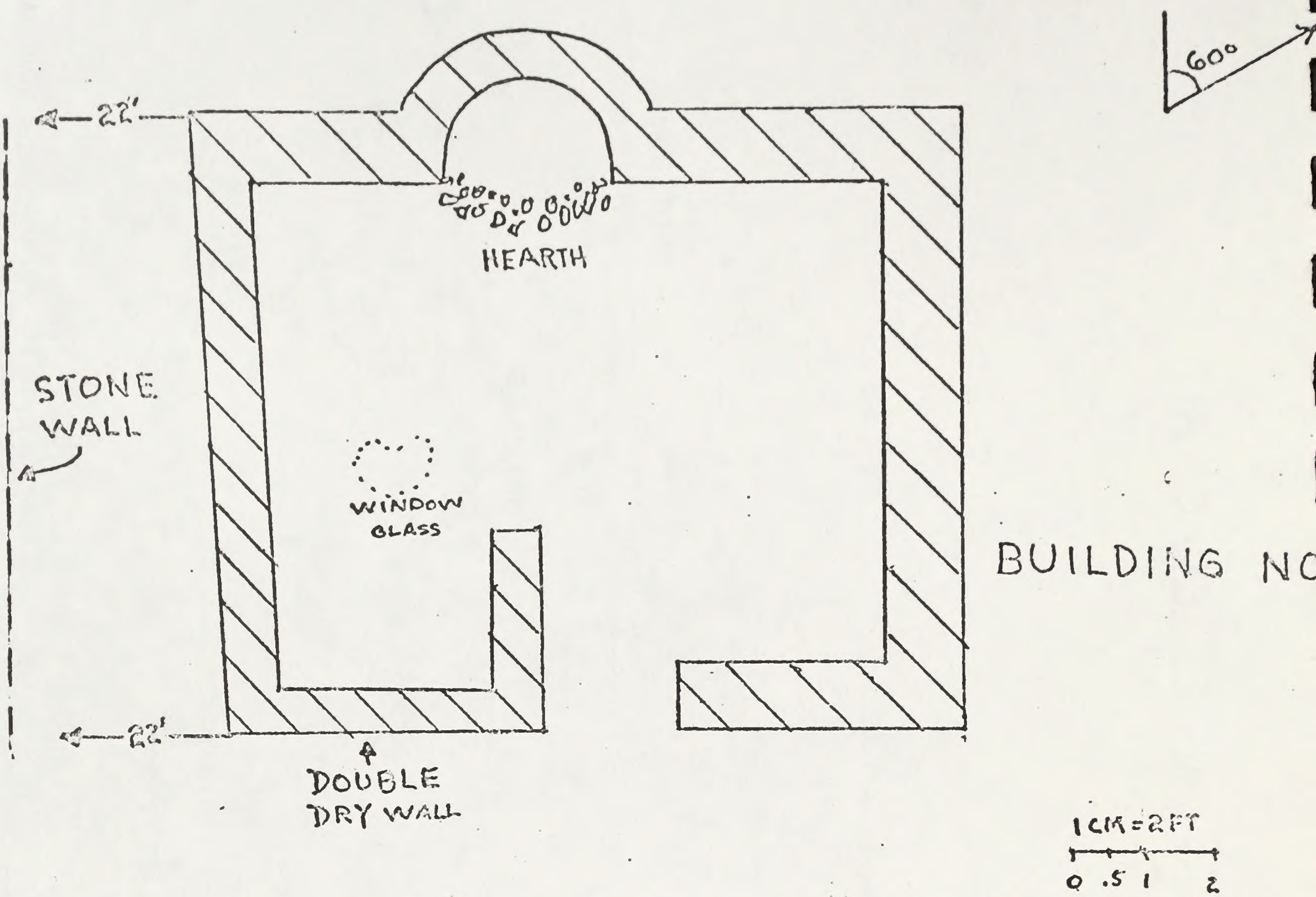
Blue Jack (Mark 44 Claim Block) 20Ny1312

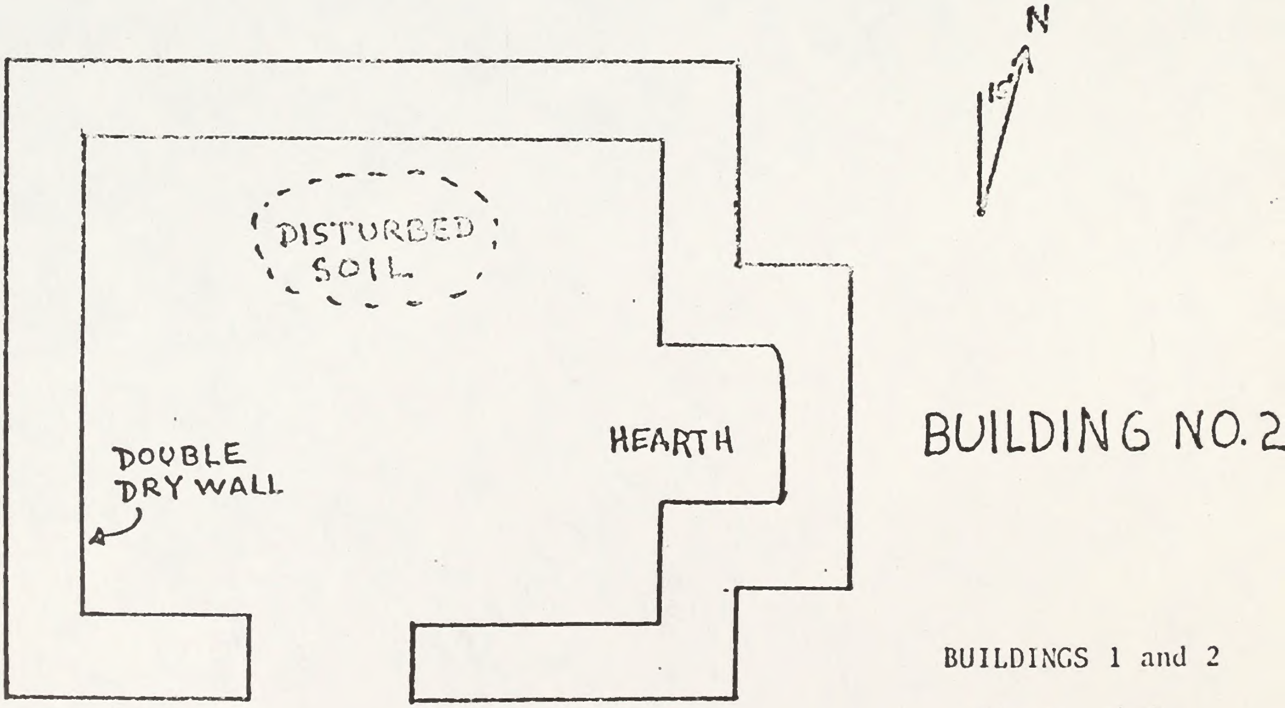
The principal features of this mining claim are three stone wall structures located at the confluence of two canyons and approximately 2000 feet southeast of a mine shaft. Figures 2-2 through 2-7 present details of the remaining structures. On the USGS San Antonio Quadrangle (15' Series, 1964) this area is indicated as "Ruins" (26Ny1312). The remaining stone walls are of locally available talus stone that was fractured into sizes suitable for dry wall construction. Scattered around these structures were debris from previous site occupants including glass and pottery, some of which is pre-1900. One bottle fragment recovered is embossed with, "Mexic(an) Mus(cle) Linimen(t)," and may indicate the Anglo ethnicity of its users. Although the structures cannot be precisely dated, the choice of construction materials, method of fabrication and associated debris suggest pre-"Tonopah Boom" period (1900).



"RUINS" NEAR BLUE JACK
PLAN VIEW

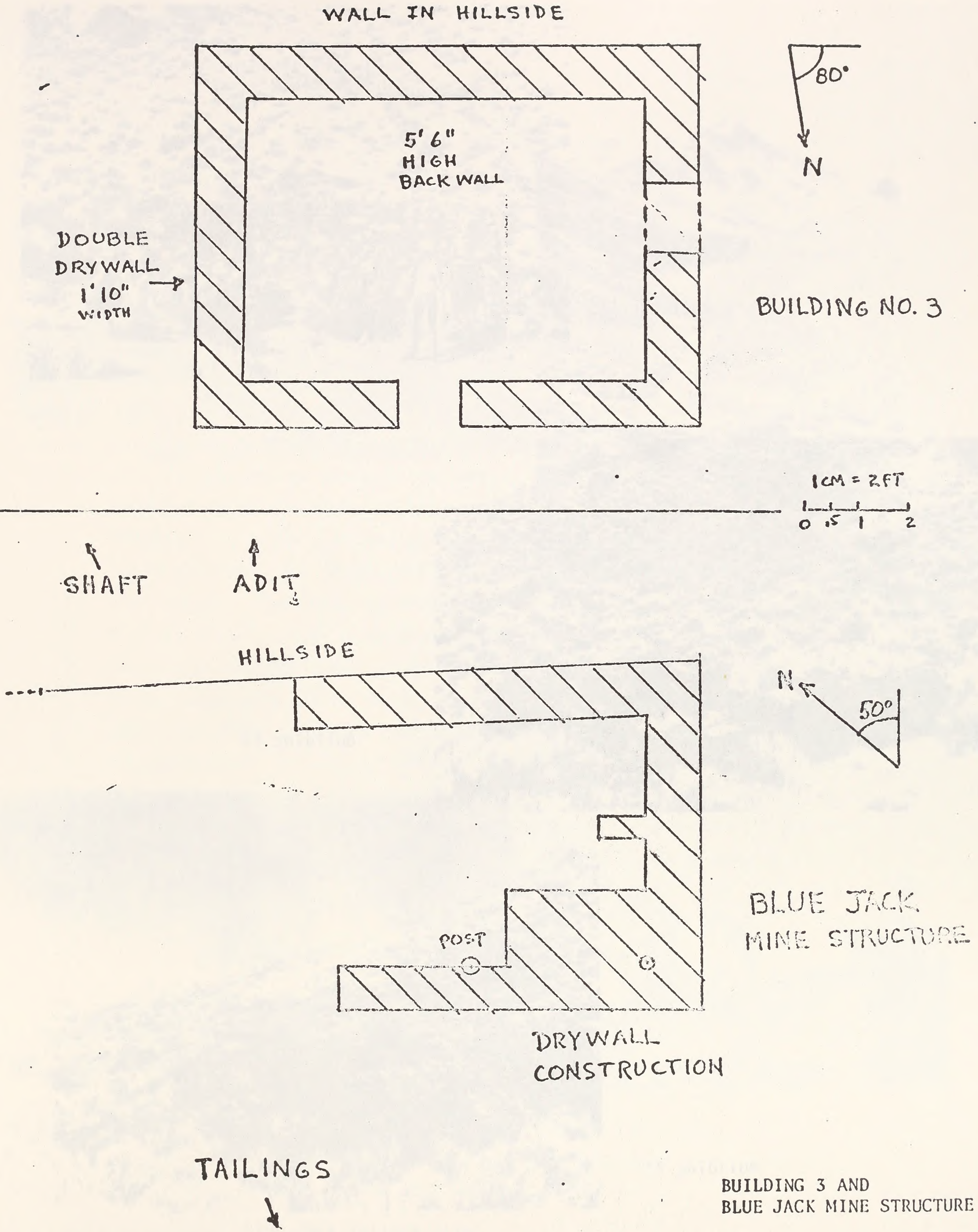
Figure 2-2





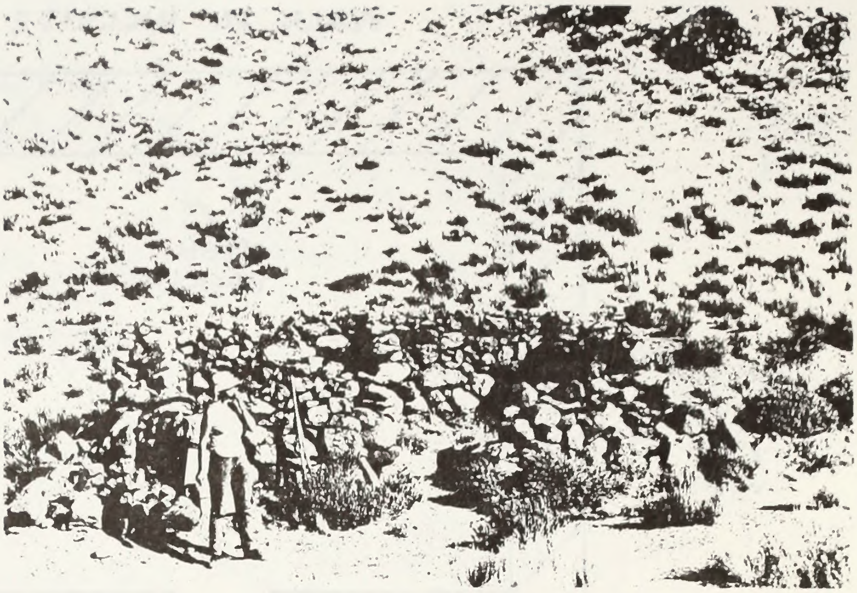
BUILDINGS 1 and 2

Figure 2-3

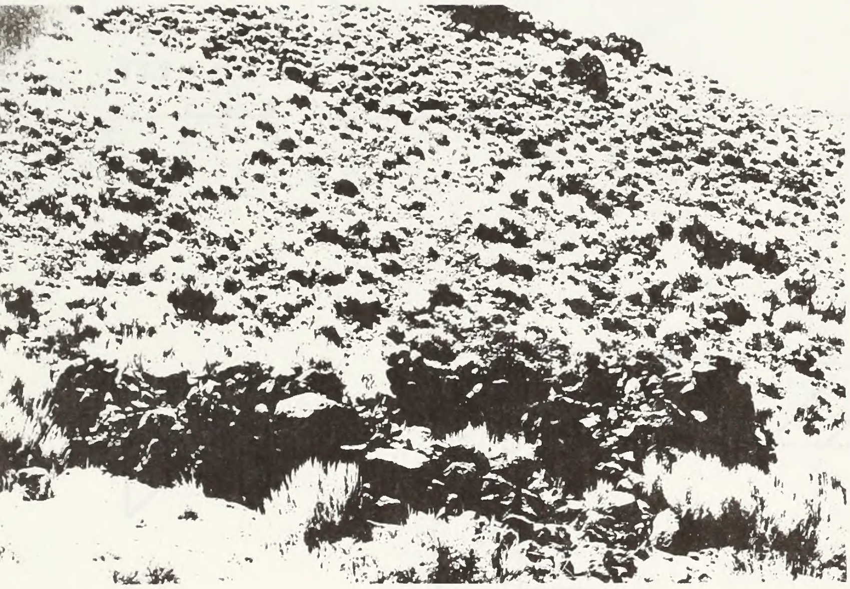


BUILDING 3 AND
BLUE JACK MINE STRUCTURE

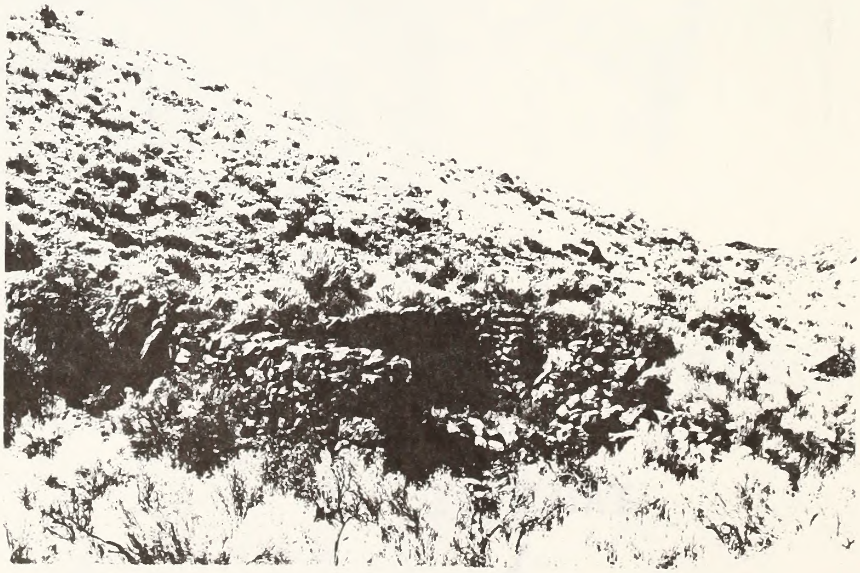
Figure 2-4



Building #1



Building #2

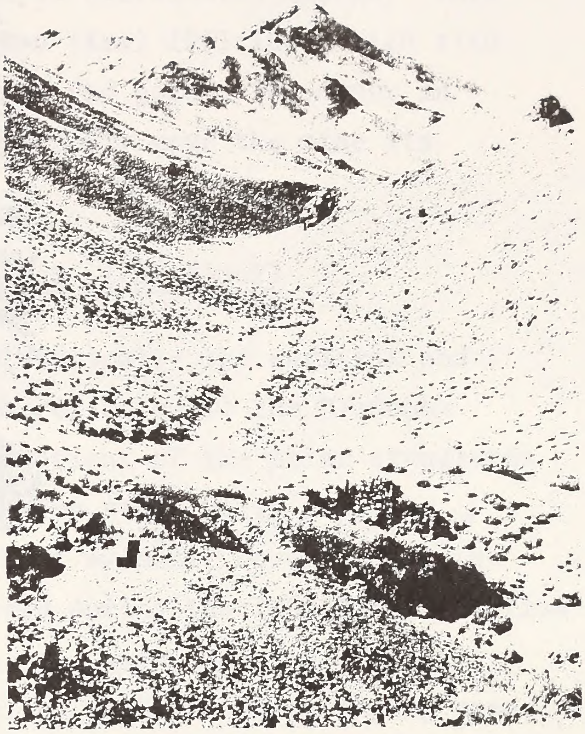


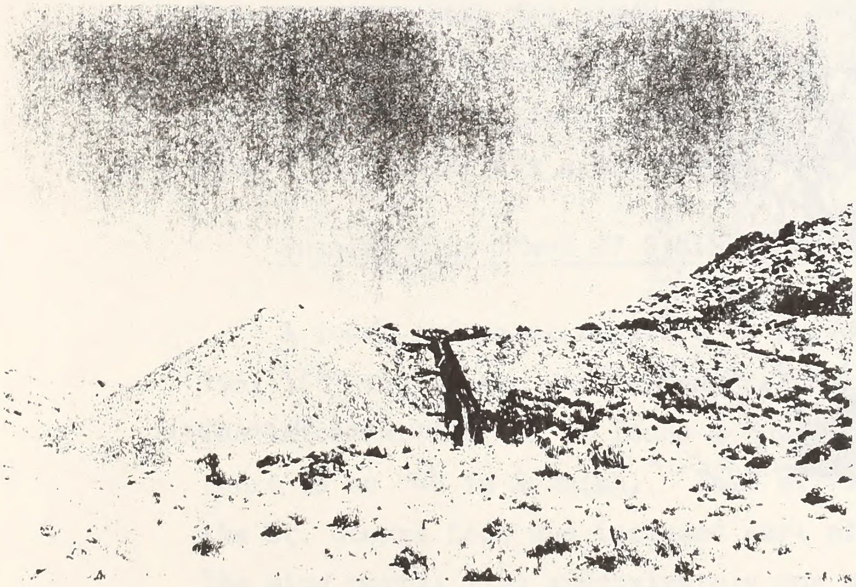
Building #3

BUILDINGS 1, 2 and 3

Figure 2-5

Southwest View from
Above Mine Shaft

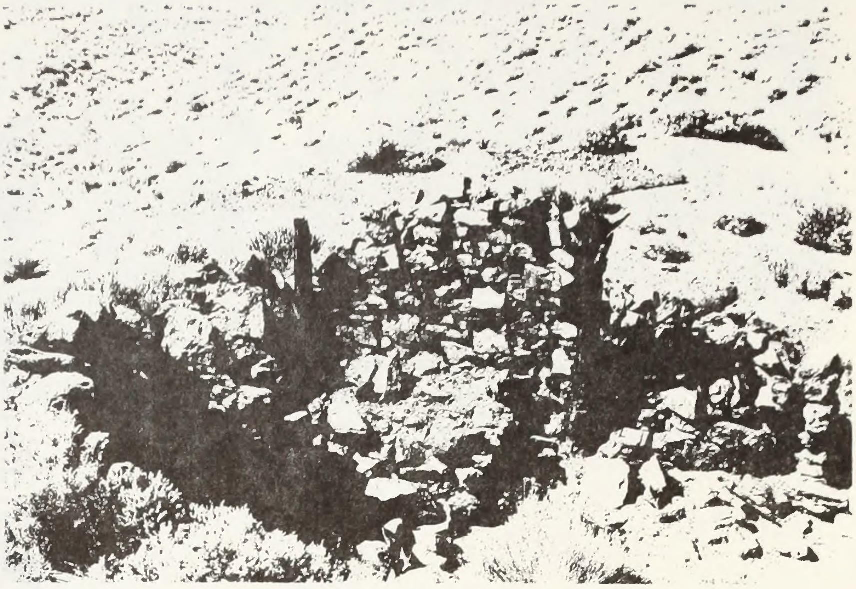




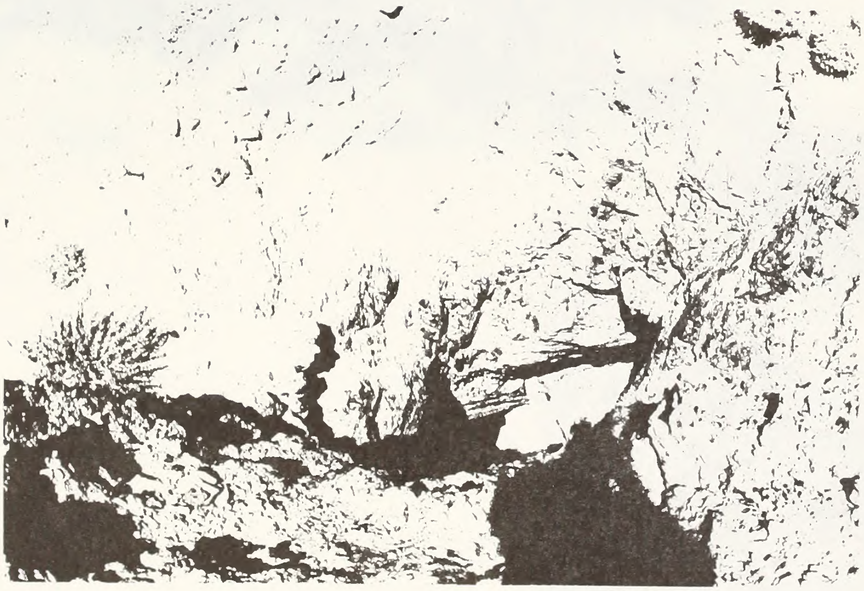
Blue Jack Tailing Pile
and Loading Sluce

BLUE JACK MINE

Figure 2-6



Blue Jack Mine Structure



Blue Jack Mine Shaft

BLUE JACK MINE

Figure 2-7

Examination of the mine shaft (Figure 2-7) and tailings indicated that the operation sought silver, present in chrysacolla quartz. This is confirmed by the available documentation (Kral 1951:160) which also states that the claim contained both silver and gold. The owner in the 1940's was W.E. King of Tonopah who probably gave the mine its current name, Blue Jack.

Liberty Mine (Burbank No. 1 & 2; Mark 2 Claim Block)

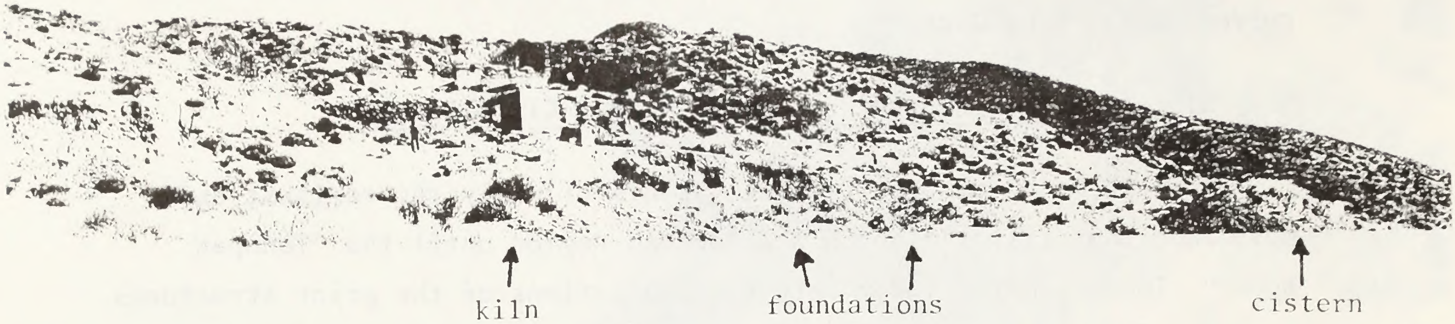
"La Libertad" or Liberty Mine was historically the earliest and most important silver mine in the Tonopah region until the "Tonopah Boom." There remains today only the foundations of the prior structures associated with the mining activities. A few stone walls from the earliest operations are still present. Most evident, however, are the cement foundations of buildings constructed during the 1909-1910 operation (Figure 2-8). The most intact structure is a stone walled, cement lined cistern. The remains of a small kiln, probably for assaying ores, also stands. The building foundations are located on the north side of a ridge (Figure 2-9), with both a shaft portal and open quarry on the south side (Figure 2-10). A chimney, part of the earlier 1870's operations, is no longer evident as it was disassembled for its bricks during Tonopah's expansion (Berg 1942:43). Several shafts exist, some open and accessible, in addition to at least 10 adits. Mine site refuse extends west from the operation into the study area.

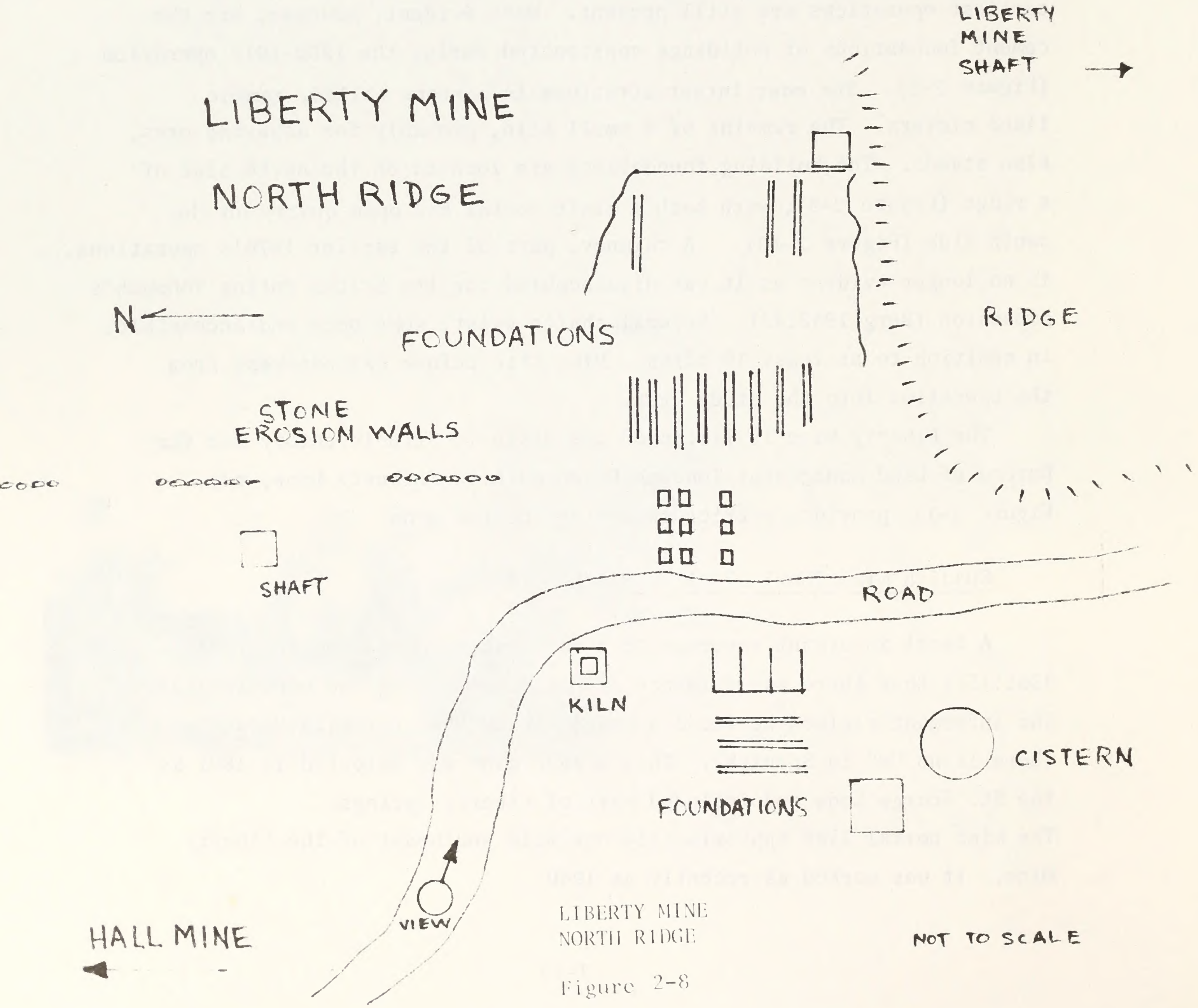
The Liberty Mine is listed on the Historic Site Inventory for the Bureau of Land Management Tonopah Resource Area (Liberty Mine, nd). Figure 2-11 provides a brief chronology of the mine.

Spanish Mine (Mark 27 Claim Block)

A local informant reported to a researcher in the 1940's (Kral 1951:158) that there was 'evidence of Mexicans working the mine in 1854.' The informant claimed he found a board marked "NWC Estrella." (sic - there is no "W" in Spanish). This silver mine was patented in 1891 as the St. George Lode and included part of Liberty Springs.
The mine portal lies approximately one mile southeast of the Liberty Mine. It was worked as recently as 1940.

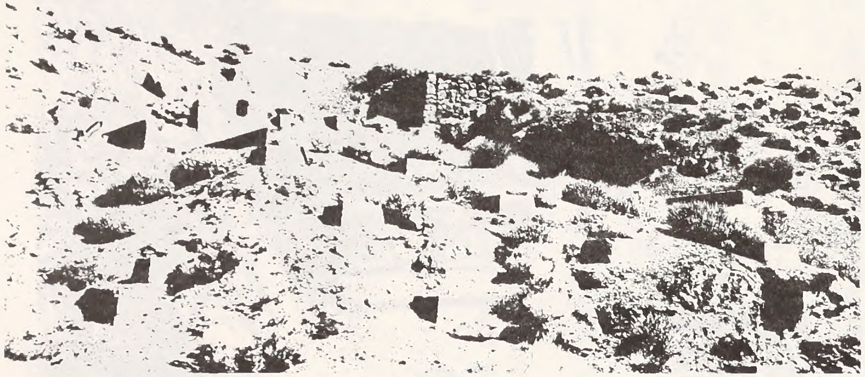
Southeast View From Road



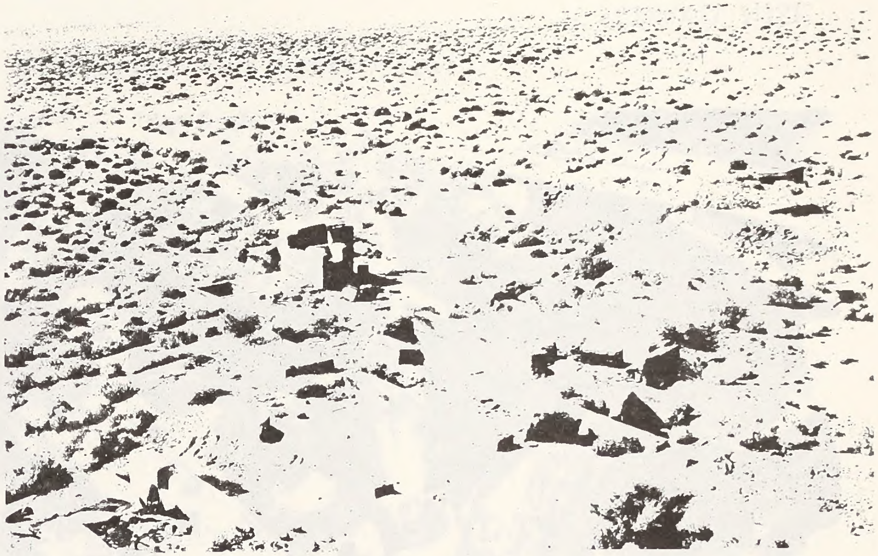


LIBERTY MINE
NORTH RIDGE

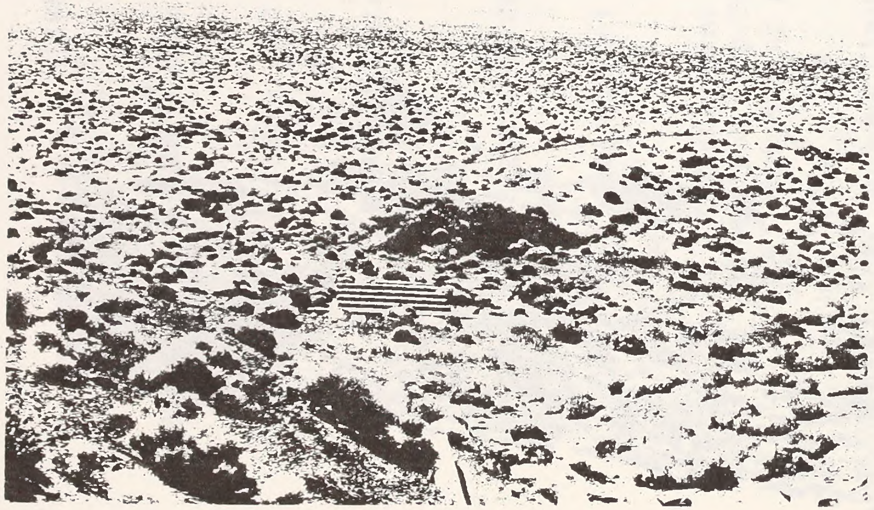
Figure 2-8



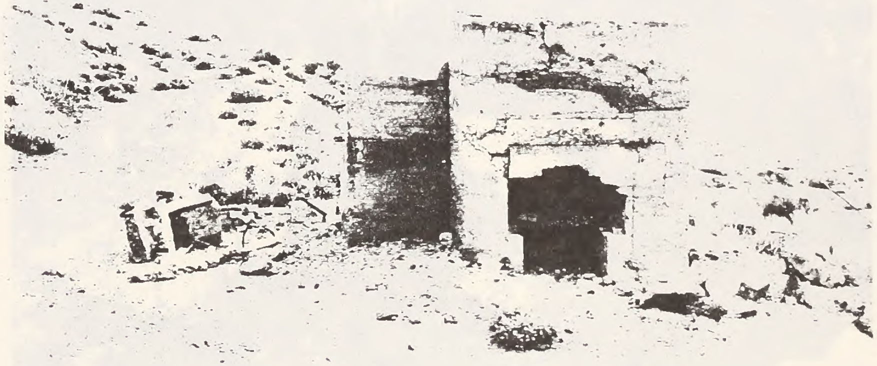
Southeast View From
Foundation Structures



Northwest View of Kiln
and Foundations



Lower Foundation
and Road



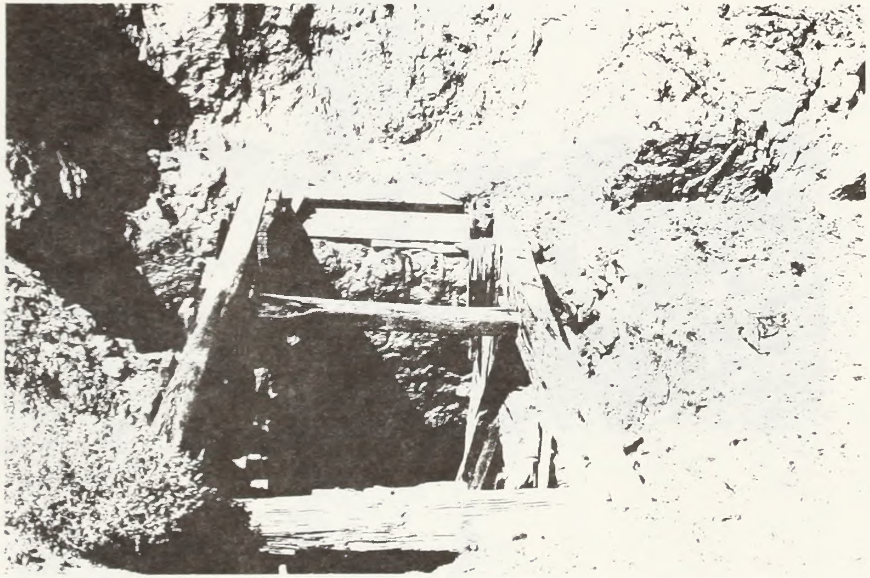
Kiln

LIBERTY MINE
NORTH RIDGE VIEWS

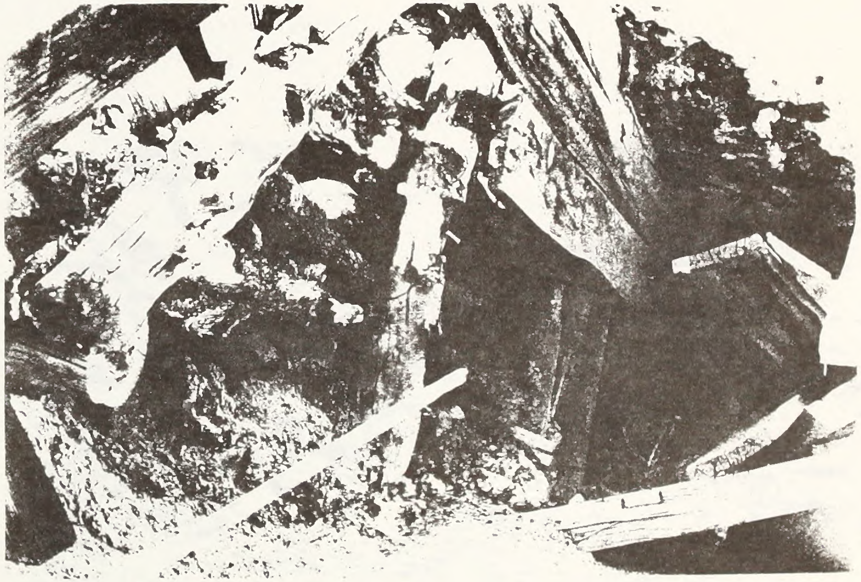
Figure 2-9

Liberty Mine Excavations

Liberty Mine Excavations
East Pit



Liberty Mine Shaft



Liberty Mine Shaft Detail

LIBERTY MINE
SOUTH RIDGE VIEWS

Figure 2-10

LIBERTY MINE CHRONOLOGY

1863 -	Liberty Mine area "discovered"
1864 -	November 1st - Establishment of San Antonio Mining District
1865 -	Hunt's 10-stamp mill erected; Construction of San Antonio Station
1867-8 -	Rigby 4-Stamp Mill constructed and replaced Hunt's Mill
1870-1873 -	Intermittant mining activities followed by abandonment
1881 -	Liberty Mine Notice of Work filed December 31, 1881 (Book A, p.234) by Thomas Washburton for $150.00 of work during prior 4 months.
1903-05 -	Burbank Claims 1, 2 and 4 are patented and include the Liberty Mine (mineral survey Nos. 2115, 2116 and 2286).
1908 -	Greyside, Utica and Razzur Claims North of Liberty Mine are patented (mineral survey No. 3481 for three claims)
1909-10 -	Reactivation of the Liberty Mine.

Figure 2-11

San Antonio Mines

Approximately 1 1/2 - 2 miles east of the proposed mine/mill waste dumps are several mining areas identified as the San Antonio Mines. Local informants report that there are several structures still standing. Limited evidence suggests these mines may have operated in the 1860's.

Historic Resources of the Smoky Valley

The earliest recorded Anglo visitors to the Big Smoky Valley were members of the Jedediah Smith party in 1827 (Brooks 1977). Two decades later the Fremont expedition traveled south through the valley, followed in 1859 by the topographer James Simpson (Hattori and McLane 1979, Carson 1974). The two wagon routes established became the Pony Express trail and Overland Stage route in 1860. It was during the 1860's that the first settlers arrived, largely attracted to the mining operations, like those at the Liberty Mine. Birch Creek (1864) and San Antonio Ranch (1865) became stage stations part of an expanding road network throughout the valley. Austin and Belmont became principal towns linked to smaller mining centers such as Ophir, Kingston, Jett, Manhattan, Northumberland and Jefferson. Today these towns are abandoned or significantly depopulated.

Settlers arriving in the 1870's turned to limited farming and ranching near the permanent water sources on the valley's western perimeter (Myles 1968). Ranches associated with these early pioneers remain preserved at several locations along Highway 376. At the turn of the 20th century, the Tonopah "boom" and Round Mountain mining operations shifted the population concentration in the Big Smoky's southern end, where it has remained until the present.

Proposed Powerline Corridor

The only historic site (26Ny 2015) within the proposed powerline corridor is located west of Round Mountain and contains refuse probably associated with early 20th century mining.

The principal categories of historic resources associated with the proposed corridor are numerous historic trail or roads dating from the time of the valley's earliest Anglo settlement more than 100 years ago.

The cadastral land survey for most of the Big Smoky Valley was completed by 1873. This documentary source was reviewed and the locations of roads recorded by the early survey were noted on USGS topographic series maps included in this report. A summary listing of the intersection of these roads with the powerline corridors is provided in Table 2-4. Many of the earliest transportation routes across the valley continue in use today. These are indicated on the USGS maps as improved or unimproved (two- truck) roads. The listing of intersecting routes in Table 2-4 not only indicates which roads are recorded but also those which may exist but whose presence remains to be confirmed. In a few instances field survey of the corridors disclosed older abandoned roads running parallel to presently used routes; two cases occur on the proposed route: old road to Northumberland and an unnamed road to a spring below Clipper Gap canyon. Unfortunately the detailed location of potentially historic roads was not available when the survey was conducted. Confirmation of possible route locations might be feasible at a later time if the proposed powerline route is chosen.

Alternate Powerline Corridor

Only one historic site was identified within the immediate vicinity of the alternate corridor. The Minnium Stage Station, established by the Minnium family who settled in the area prior to 1873, contains ruins that are directly adjacent to the corridor's eastern boundary along Highway 376. A second site, Tate's Stage Station, is recorded by a roadside historic marker, but specific documentation as to its location was not produced by the survey.

The principal historic feature of the alternate route is the Austin-Belmont Stage Road which intersects the corridor at several locations (Table 2-4). For most of the corridor's length, the stage road lies east of the 500 foot boundary. At the Minnium's Stage station it probably is within the corridor until crossing to the west of Highway 376 near the Lander County Border. Within close proximity to the Belmont-Austin Road are numerous historic structures relating to the original Anglo Settlement of the valley.

TABLE 2-4

ROAD INTERSECTING POWERLINE CORRIDORS[1]

Route Name/Destination	Location Section/Township/Range	Report Map Number	Recorded on USGS O=no X=yes
PROPOSED ROUTE			
San Antonio Mines	5/6/42	1, 2	O
Unnamed Road (San Antonio Ranch-east over mountains)	22/7/42	1, 2	X
Wadsworth and Belmont Rd.	12/7/42	2	X
"Old Road"	12/7/42	2	O
Unnamed Road	20/8/43	3	X
Unnamed Road Belmont to Manhattan	9/8/43	4	O
Unnamed Road	14/9/43	6	X
Unnamed Road	1/10/43	8	X
Unnamed Road	17/11/43	9	O
Unnamed Road	8/11/44 33/12/44	10, 11	O
Moore's Creek Ranch Road (1873/1907)	22/12/44	12	X
Road to Belmont (1907)	11/12/44	12	X

---

(1) The locations of roads not identified on the USGS 7.5 and 15 minute series maps is derived from the 1873 cadastral survey plat sheets of the region which are available at the Reno BLM office.

TABLE 2-4

ROAD INTERSECTING POWERLINE CORRIDORS[1]

Route Name/Destination	Location Section/Township/Range	Report Map Number	Recorded on U O=no X=yc
Austin-Belmont Road	(35)/13/45	13	X
Northumberland	(6)/13/45	15	X
Northumberland	31/14/45	15	X
Old Road	31/14/45	15	O
Unnamed (to Wildcat Canyon, North Fork and Jeans Springs)	17/14/45	15	O
Unnamed (To Spring)	16/15/45	16	X
Unnamed	27/16/45	16	O
Unnamed (to Clipper Gap)	10/16/45	17	O
Unnamed (to Hot Springs)	3/17/45	17	O
Overland Stage Route	12/18/45	18	X
Pony Express Route	(23)/19/45	18	X
ALTERNATE ROUTE			
Austin-Belmont Main Road	(24)/12/43	23	O
Branch, Austin-Belmont	25/13/43	26	O

---

[1] The locations of roads not identified on the USGS 7.5 and 15 minute series maps is derived from the 1873 cadastral survey plat sheets of the region which are available at the Reno BLM office.

TABLE 2-4

ROAD INTERSECTING POWERLINE CORRIDORS[1]

Route Name/Destination	Location Section/Township/Range	Report Map Number	Recorded on U O=no X=ye
Alternative Auton Road	NS/ /43	22	X
Auton-Belmont	18/15/43	28	O
Auton-Belmont	5/15/43		
Unnamed (Road to Eureka)	20/17/44	31	O

---

[1] The locations of roads not identified on the USGS 7.5 and 15 minute series maps is derived from the 1873 cadastral survey plat sheets of the region which are available at the Reno BLM office.

3. ENVIRONMENTAL CONSEQUENCES

SPECIFIC ASSUMPTION AND ANALYSIS GUIDELINES

The field survey practices associated with the mine/mill site and powerline corridors were performed in accordance with practices currently used by the Bureau of Land Management (BLM) for Class II and Class III cultural resource surveys. Evaluation of prehistoric and historic sites was formulated based on assembled documentation from research and field studies. National Register eligibility criteria contained in 36 CFR 120 (formerly 36 CFR 66), regional historic significance, provided the guidelines and criteria of significance for evaluating the specific resources identified by this project.

The analysis is based on the assumption that the mitigation measures (# 21, 22, 23, and 24) described in Chapter 1 of the DEIS are real and would be enforced.

EFFECTS OF IMPLEMENTING THE PROPOSED ACTION AND ALTERNATIVES

Proposed Action

Impacts

Prehistoric Sites. The ten prehistoric sites located within the proposed transmission line route represent small single task activity areas. These sites can yield archeological information which is important to understanding the settlement subsistence pattern of the Big Smoky Valley. Therefore, they are eligible for the National Register of Historic places, according to the criteria listed in the Procedures for the Protection of Historic and Cultural Resources (Title 36; 800.10).

The sites located in the transmission line construction area would be directly affected by construction activities. However, this is not a significant adverse impact because the BLM Class III mitigation program described in Chapter 1 would mitigate the adverse effects to the cultural resources of Big Smoky Valley adequately by surface collection, curation of specimens, and preparation of a report of the study. The integrity of the salvaged sites would be lost, but this is not considered a significant impact because the knowledge and history of the site would be recorded for the interpretation and understanding of future generations.

Historical Sites. As indicated, there are no historical sites within the mine/mill complex, but there are two historic sites (Blue Jack and Liberty Mines) adjacent to the mine/mill complex which would be indirectly affected by the Nevada Moly Project.

According to the Nevada State Museum, the Liberty Mine ruins are eligible for inclusion in the National Register according to Criterion 4 under Title 36, Part 800.10 (Procedures for the Protection of Historic and Cultural Properties).

The construction and operation of the project would result in additional mining personnel and would increase the population in the immediate area. It is assumed that there would be an increase in site visits to both mines. However, the actual number of site visits and damage to the site is difficult to predict. Assuming worst-case analysis, indirect impacts resulting from increased site visits to the Blue Blue Jack and Liberty Mines would significantly affect the historical values of the Big Smoky Valley because the potential for eligibility for these sites to the National Register would be reduced due to destruction of the sites.

A single historic site exists within the proposed route's corridor. If directly impacted by the construction activities, the impact to the site would not be considered significant because mitigation would be accomplished. The systematic collection and recording of the site would provide historical documentation for understanding Round Mountain's mining industry. Therefore, the indirect impact to the site is considered to be insignificant.

Approximately 23 historical trails or stage roads intersect the proposed powerline corridor. Construction of access routes across these trails or roads would directly affect the historical value of these features. The significance of this impact is difficult to predict because many of the original routes in the valley have been significantly altered through modern vehicle use or road upgrading. If the altered routes are directly affected by transmission line construction, it is assumed that the direct impact is insignificant because their present historic value is low. However, the remaining routes reflect transportation by wagon or stage and therefore represent valuable historical features associated with the historic development of the Big Smoky

Valley. If these routes are directly impacted by transmission line construction activities, it is assumed that this would represent a significant direct impact because their historic value to the Big Smoky Valley is great and valuable historic features and values would be lost.

Unavoidable Adverse Impacts

The loss of the integrity of the prehistoric sites salvaged within the transmission line corridor is an insignificant unavoidable adverse impact. Two historic mining sites (Liberty and Blue Jack Mine) which are located near the mine/mill complex would be significantly indirectly affected due to destruction associated with increased site visitation. Damage to the historical trails or stage roads with high regional value to Big Smoky Valley which would be impacted by transmission line construction would be considered a significant unavoidable adverse impact.

Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity

The Proposed Action would impact the integrity of cultural resources sites (approximately eleven) for the short term. The affected cultural sites would be salvaged and the characteristics of the sites would be recorded for the interpretation and understanding of future generations. The increased population associated with the development of the mine/mill complex would also indirectly impact the nearby Liberty and Blue Jack mines for the short term. The short-term impacts on these historical sites would affect the historical resources of the Big Smoky Valley over the long term.

Irreversible and Irretrievable Commitment of Resources

Construction of the transmission line may result in the excavation of cultural resources as a salvage measure. The loss of the integrity of the site would be an irreversible and irretrievable commitment of resource.

Alternative 1 West Smoky Valley Alternative

Impacts

Prehistoric Sites. Nineteen prehistoric archeological sites are located within the alternative corridor route. Most of the sites are small single task activity areas. The sites located in the transmission line construction area would be directly affected by construction activities. However, this is not considered a significant adverse impact because the BLM Class III mitigation program described in Chapter 1 would adequately mitigate the adverse effects by surface collection, curation of specimens, and preparation of a report of the study. The integrity of the salvaged sites would be lost, but this is not considered a significant impact because the characteristics and history of the site would be recorded for the interpretation and understanding of future generations.

Three large settlements indicating extensive occupation are located near the alternative corridor. Additional analysis and testing is required to determine the extent and significance of the prehistoric sites. Initial analysis indicates that these sites would be eligible for nomination to the National Register. Therefore, assuming the worst-case analysis based on present information, it is assumed that any direct or indirect impacts to these sites as a result of construction activity or increased visitation as a result of increased population would represent a significant adverse impact to information relevant to the prehistory of the Big Smoky Valley.

Historical Sites. The Minnium Stage Station and Belmont-Austin Stage Coach Road are two historical features located in or adjacent to the alternative corridor. The significance of these features has not been determined. However, assuming the worst-case analysis, it is assumed that any direct or indirect impacts to these sites would represent a significant adverse impact to the historical resources of the Big Smoky Valley.

Summary. Based on information known to date and assuming worst-case analysis, the construction of the transmission line in the alternative corridor would represent a significant cumulative adverse impact to the prehistoric and historic resources of the Big Smoky Valley. In order to mitigate these adverse impacts and to preserve the integrity of known prehistoric and historic sites, the right-of-way would have to be moved farther up the alluvial slope to protect the sites after a Class III cultural resource survey has been completed. This additional mitigation measure would eliminate the adverse impacts cited.

Unavoidable Adverse Impacts

For the West Smoky Valley Alternative transmission line route, significant unavoidable adverse impacts would be associated with direct or indirect impacts to the three major prehistoric sites and two historic sites. The construction of the transmission line would represent a significant cumulative adverse impact to the prehistoric and historic resources of the Big Smoky Valley. Relocation of the transmission line alignment around these significant sites would preserve sites and eliminate the adverse impacts cited.

Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

This relationship would be basically the same as if the Proposed Action were implemented.

Irreversible and Irretrievable Commitment of Resources

These would be identical to those discussed for the Proposed Action.

Alternative 2 (Alternative Tower Structures), Alternative 3 (Alternative Crushing Grinding Circuit for Mine/Mill Complex) and Alternative 4 (no action)

The impacts of these alternatives on cultural resources would be the same as those associated with implementation of the Proposed Action or Alternative 1.

REFERENCES

Anderson, C. A. and M. W. Cox 1943. Geology of the Hall Moly Property. U. S. Dept. of Interior, Geology Survey, Washington, D. C.

Brooks, G. R. 1977. The southwest expedition of Jedediah S. Smith, Glendale, California: The Arthur Clark Co.

Berg, L. R. 1942. A History of the Tonopah Area and Adjacent Region of Central Nevada 1827 - 1941. M. A. Thesis.

Carlson, H. S. 1974. Nevada Place Names. University of Nevada Press, Rena.

Federal Register 1979a February 6. Part II

Federal Register 1979b June 5, Vol. 44, No. 109 pp. 32298

Hattori, E. M. and A. McLane 1979. Report of a BLM Class III cultural resources inventory of two seismic lines in Big Smoky Valley, Lander County, Nevada. Reno: University of Nevada, Desert Research Institute.

Kral, V. E. 1951. "Mineral Resources of Nye County, Nevada" University of Nevada Bulletin (Reno), Vol. 45, No. 3 (Jan.), Geology and Mining Series No. 50.

McGonagle R. L. and L. L. Waski 1978. Archaeological survey of springs: Tonopah resource area. Technical Report Number 2. Reno: Bureau of Land Management.

Liberty Mine 1909-10. "Time Book and Cost Sheets." Nevada Historical Society Manuscript No. 1215.

Liberty Mine nd. Historic Site Inventory Unit Resource Area, Step 3 Recreation. Tonopah Resource Area, Bureau of Land Management.

Lincoln, F. C. 1923. Mining Districts and Mineral Resources of Nevada Nevada Newsletter Publishers.

Mifflin, M. D. and M. M. Wheat 1979. Pluvial lakes and estimated pluvial climates of Nevada. Nevada Bureau of Mines and Geology Bulletin 94.

Mining Claims 1901. Book E, Mining Clains. County Recorder, Tonopah, Nevada.

Mordy, B. D. and D. L. McCaughey 1978. Nevada Historical Sites. Western Studies Center, Desert Research Institute, University of Nevada, Reno, NV.

Myles, M. T. 1968. "Smoky Valley stories." The Nevadan, 6 parts. Dec. 22, 1968 - Apr. 27, 1969

Paber, S. W. 1978. Tonopah, Silver Camp of Nevada. Nevada Publications, Las Vegas.

Raymond, R. W. 1868. Report on the Potential of the San Antonio Mining District Mine, Rigby Silver Mining Company. Nevada Historical Society Manuscript No. 1938.

Raymond, R. W. 1870. Statistics of Mines and Mining in States and Territories West of the Rocky Mountains. Government Printing Office, Washington, D. C.

Rusco, M. and S. Clerico 1979. Hall Mine Survey Final Report. Nevada State Museum, Carson City, Nevada.

Rusco, M. and S. Monteleone 1979 Anaconda Hall Mine 230KV Power Transmission Line; Survey Final Report. Nevada State Museum, Carson City, Nevada.

San Antone Mining District, Nye County 1891 - 1966. Mineral Surveys and Claims, Bureau of Land Management, Reno, Nevada.

St. Clair, H. W. 1977. Mineral Industry in Early America. U. S. Department of the Interior, Bureau of Mines, U. S. Government Printing Office, Washington.

Seelinger, E. 1978. Archaeological Records and Literature Search. Nevada State Museum Project 18 - 40, Contract 1072, MS. Nevada State Museum Carson City.

Steward, J. H. 1938. Basin-Plateau Aboriginal Sociopolitical Groups. Bureau of American Ethnology Bulletin 120, Washington, D. C.

Thomas, D. H. 1977. Preliminary Report on Archaeological Investigations of Pleistocene Lake Tonopah Summer 1977. Ms., Nevada State Museum.

Young, O. E. Jr. Western Mining. University of Oklahoma Press; Norman.

36 CFR Part1204"Procedures of Requesting Determination of Eligibility." Federal Register, April 27, 976, Part III.

PERSONAL CONTACTS

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Zeier, Charles, Archaeologist, Division of Historic Preservation and Archaeology, Depart of Conservation and Natural Resources, Carson City, NV.

APPENDIX A

NEVADA STATE MUSEUM REPORTS

The Nevada State Museum
CAPITOL COMPLEX
CARSON CITY, NEVADA 89710
Telephone (702) 885-4810
Archaeological Services

Archaeological Resources Short Report County: Nye

Project: Hall Mine Survey Final Report (Project #12-138; Contract #1082 & 1087).

Project Director: Mary Rusco

Reconnaissance Personnel: Dennis Bill, Bonita Brown, Margaret Brown, Cashion Callaway, Sheryl Clerico, Sue Ann Cupples, Darryl Duffé, Pamela Hoffman, Keith Katzer, Carl Lundin, Barbara Sayer, Terry Seelinger and Susan Toll, Archaeological Technicians.

Federal Antiquities Permit: 77-NV-097

State Antiquities Permit: 177

Dates of Field Examination: Contract 1082: August 5-9, 1978; Contract 1087: November 17-22, 1978; January 23-25, 1979; March 22-27, 1979 and April 11-13, 1979.

Date of Report: April 27, 1979 (incorporating report dated September 29, 1978).

Map References: AMS Tonopah, Nevada 1:250,000 (1962)
USGS San Antonio Ranch, Nevada 1:62,500 (1964)

Legal Description: T5N, R41E: all of Sections 1 and 12; the W 1/5 of Sections 2 and 11; the W 1/2 of the NW 1/4 of Section 14; the N 1/2 of Section 13.

T5N, R42E: Sections 5,6,7 and the N 1/2 18 (Note: section boundaries not surveyed by U.S. Lands Survey for this area).

T6N, R41E: all of Section 36; the W 1/5 of Section 35; the SW corner of Section 26; the S 1/4 of Section 25.

T6N, R42E: all of Sections 31 and 32; the S 1/4 of Sections 29 and 30.

Research Design: Inventory and evaluation of archaeological and historical sites along proposed mining development of the molybdenum deposit by the Anaconda Mining Company in and near the present site of the Hall Mine.

Methods: Reconnaissance was conducted according to a stratified sampling design. Topographic features - degree of slope, proximity to intermittent water sources and elevations above the valley floor - were used to define strata judged to have varying probable site frequencies (Fig. 1). Stratum 1, with

Methods (cont'd): highest (relative) expected site frequency, was inspected by archaeological technicians walking along parallel transects at 30 meter intervals. Stratum 2 is an area of relatively rugged terrain. The central part of Stratum 2 was walked at 60 meter intervals and no sites were recorded, hence the remainder of Stratum 2 was inspected intuitively; areas included in the intuitive inspection were along dry creeks, ridgetops, saddles and the areas of lowest relief.

Transects were oriented north-south or east-west, with the direction chosen with ease of access in mind.

When an artifact was found, its immediate vicinity was inspected systematically in order to find whether or not there were associated artifacts and, if so, the size of the site area. Sites were photographed and marked with surveyor's flagging. All artifacts were collected from sites with fewer than 20 artifacts on the surface. No test pits were excavated. Inspection of ground surface, animal burrow backdirt and other subsurface exposures was the basis for evaluating the probability of associated subsurface cultural deposits. Observations were recorded on standard archaeological site inventory forms.

Artifacts collected were described and cataloged on standard catalog cards used for the curation of artifacts for the BLM in Nevada.

Location of sites was plotted on USGS maps.

Site inventory records and copies of catalog cards and the maps showing site locations are appended.

Area and Environmental Setting: The subject area centers around the northwestern slopes of the San Antonio Mountains, north of Tonopah in central Nevada. It overlooks the southern part of the Big Smoky Valley and the northern Monte Cristo Range to the east. The area drains into Peavine Creek which runs south and southwest into a large playa lake at the extreme southern end of the Big Smoky Valley (see previous report, Hall Mine Literature Search, Project #18-40, for further information on the general area).

The surveyed area is on the alluvial fan and foothill area of the San Antonio Range. Elevations of the area extend from 5359' to 6600'. Soils are sandy, unsorted alluvium. No running water was observed in the surveyed area, but several intermittent stream beds are present.

Vegetation is salt desert shrub (Sonoran), varying slightly with altitude. Flora observed include:

Sarcobatus sp.	(greasewood)
Opuntia sp.	(cholla)
Grayia spinosa	(hopsage)
Chrysothamnus sp.	(rabbitbrush)

Area and Environmental Setting (cont'd):

Artemisia tridentata (sagebrush)
Artemisia spinescens
Ephedra viridis (joint fir)
Oryzopsis hymenoides (rice grass)
Bromus tectorum (cheat grass)
Halogetan glomeratus
Other unidentified forbs and grasses

Fauna observed include: *Lynx rufus* (bobcat)
Lepus californicus (jackrabbit)
Sylvilagus sp. (cottontail)
Crotaphytus collaris (collared lizard)
Phrynosoma sp. (horned toad)
Other unidentified lizards, birds and small animals.

Because of the mining activity, much of the ground surface is disturbed. The area in the immediate vicinity of the Hall Mine is the most drastically altered. Small bulldozed pits also occur at many of the claim sites in the area.

Acreage: Approximately 5,060 acres were surveyed intensively and approximately 1,440 acres were surveyed extensively.

Previous Research: See report of literature and archives search (Seelinger 1978).

Results of Reconnaissance: A total of 25 sites (26Ny1305-1312; 26Ny1898-1907; 26Ny1319-1325) were recorded in the Hall Mine project area. Of these, 23 (26Ny1305-1310; 26Ny1899-1907; 26Ny1319-1325) are each a very small and open, aboriginal site, each the location of a small (fewer than 20 artifacts) lithic scatter or of a single flaked stone artifact.

Two historic sites (26Ny1311,1312) were also recorded.

All except one of the small sites were found in elevations below 5800 feet; the exception (26Ny1907) is approximately 6480 feet, on the alluvial slope. The elevation of each site and the number and kind of artifacts observed or collected are shown on Table 1. Locations are shown in Figure 2.

Only one of the open aboriginal sites (26Ny1902) appears to have any associated subsurface remains. Ashy sand and fire blackened rock exposed in a burrow suggest the possibility that a hearth may be present. A total of 18 flakes were found. Most (12) are small flakes from the reduction of 2 or more small cobbles; 1 large jasper flake has slight damage (small flake scars) along 1 acute, concave edge; 3 flakes of a white opalite and 1 small pink chert flake were found.

TABLE 1

Sites in the Hall Mine Project Area

Site #	Elevation	Size	Artifacts and Features
Ny1902	5720'	$20m^2$	17 flakes; 1 possibly utilized flake; ashy sand, fire-blackened soil exposed by rodent burrow.
Ny1898	5250'	$25m^2$	19 flakes, all apparently from 3-4 obsidian cobbles. No EU's.
Ny1305	5550'	$<1m^2$	1 large grey chert utilized flake.
Ny1306	5625'	$<1m^2$	Biface fragment.
Ny1307	5602'	$<4m^2$	2 flakes from obsidian cobble.
Ny1308	5620'	$<1m^2$	1 utilized flake, white opalite.
Ny1309	5700'	$160m^2$	1 biface fragment, opalite, 2 flakes.
Ny1310	5850'	$<1m^2$	1 white chert drill fragment.
Ny1319	5650'	$<1m^2$	1 large cortex-backed utilized flake (1 EU), obsidian.
Ny1320	5640'	$<1m^2$	1 small obsidian core or biface fragment.
Ny1321	5660'	$140m^2$	1 projectile point - Elko? series, white opalite 1 large jasper flake, 2 EUs; 1 small obsidian.
Ny1322	5800'	$<1m^2$	
Ny1323	5700'	$800m^2$	2 flakes from obsidian cobble, 2 EUs each. 3 large flakes - no apparent EUs.
Ny1324	5740'	$<1m^2$	1 small obsidian core fragment.
Ny1325	5740'	$600m^2$	1 obsidian flake; 8 opalite flakes or sherds, apparently thermally altered.
Ny1899	5400'	$<1m^2$	1 thick flake from biface edge, 1 EU, obsidian.
Ny1900	5284'	$<1m^2$	1 small obsidian flake, no EU.
Ny1901	5540'	$<1m^2$	1 small biface fragment, white opalite.
Ny1903	5700'	$<3m^2$	2 obsidian flakes, no EU's.
Ny1904	5710'	$<1m^2$	Large point fragment, Elko? series, grey chert.
Ny1905	5600'	$<1m^2$	Metate (not collected).
Ny1906	5760'	$<1m^2$	Large point midsection, white opalite.
Ny1907	6480'	$<1m^2$	1 small biface? fragment, white opalite.
Ny1311	5900'	$<1m^2$	Sherds of drinking glass (amethyst).
Ny1312	6560'	$<1km^2$	3 stone foundations; 1 associated with mine shaft, midden: various glass, ceramics, metal artifacts.

Results of Reconnaissance (cont'd.): This site is the only one found in the subject area which may represent more than a single activity. It may be the remains of a temporary camp.

One site (26Ny1898) has debitage from the reduction of 3 or 4 obsidian cobbles. Most of the isolated finds of utilized obsidian flakes resemble this material. It is a black, nearly opaque, material, with a relatively smooth cortex and may be local in origin.

A projectile point and 2 biface fragments found are made of a pinkish white opalite, which has a glossy luster with a slightly crazed, pot-lidded surface. At one site (26Ny1325) 8 flakes of this material were found. It may be a material which is thermally altered prior to knapping, but more likely this is the natural condition of the raw material. It apparently fractures conchoidally, except where surface crazing flaws intercept the path of the fracture. Flake scars on the projectile point and bifaces are irregular, relatively thick, with hinged or step terminations. The raw material is only barely suitable for knapping and is probably local.

Most of the artifacts found are made from obsidian cobbles or from the opalite described above. Notable exceptions are 1 jasper flake tool (26Ny1321), one grey chert projectile point (26Ny1904), a utilized flake (26Ny1305) and a white chert drill base (26Ny1310).

A metate (26Ny1905) was photographed and left in place. Not apparently associated with any other artifacts, it is the only ground stone artifact found in the subject area.

There is no evidence for any semi-permanent occupation within the subject tract. Instead, there are small surface scatters and isolated "finds" of flaked stone artifacts, each of which appears to represent a single activity. The one possible campsite is likely to have been a temporary one. The points found are apparently Elko series and the drill base (26Ny1310) may have been made from an Elko series point. Hester and Heizer suggest a time span of 2,000 B.C. to A.D. 1080 for this series in the Great Basin as a whole (Hester and Heizer 1973:5), although it is probably locally more restricted.

The isolated find of sherds from a drinking glass (26Ny1311) and the mine ruins (26Ny1312) which are located west of the project area, a network of unimproved roads, machine excavated pits and a powerline all attest to human activity from the late 19th century to the present.

Additionally, a series of dump middens associated with the Liberty Mine were noted on the alluvial slope west of the mine area. The general locations of these middens are indicated on Figure 2.

The aboriginal sites recorded in this reconnaissance may be the result of original deposition, or may have been deposited from the foothill region through flash flooding or sheet erosion. Although no sites were observed

Results of Reconnaissance (cont'd.): in the foothill region, the large amount of ground disturbance at the site of the Hall Mine may have destroyed the original site of deposition. If these sites do not represent original deposition and the place of origin cannot be determined, the significance of these sites is in the artifacts only.

If these sites represent original deposition, they would then represent limited utilization of the area by aboriginal and historic peoples. The occurrence of the aboriginal sites is limited to the upper slopes of the alluvial fan and may represent transient activities such as hunting and/or gathering. That is, the area would be inhabited or utilized for brief time periods by small groups who were exploiting a specific resource. The significance of these sites is in the representation of patterns of exploitation utilized by both prehistoric and historic peoples.

National Register Properties: No properties presently listed on the National Register of Historic Places (February 6, 1979) are situated within the Hall Mine project area. The early mine ruins (26Ny1312) that are east of the project area might be the ruins of La Libertad, a mine dating from the late 1800's. This site might be considered eligible for inclusion on the National Register according to Criterion 4 under Title 36, Part 800.10 (Procedures for the Protection of Historic and Cultural Properties).

Summary and Recommendations: A total of 6,500 acres were surveyed, and most of the cultural resource sites observed were collected. The proposed mining activity is not expected to have adverse impact on the prehistoric site inventory.

The historic mine site (26Ny1312) should be preserved. It is outside the area of direct impact, but subject to indirect effect of increased land use in its vicinity.

It should be remembered that, even though this investigation was conducted in as thorough a manner as present techniques will allow, it is possible that some cultural resources may have been overlooked. If, during the course of activity, significant archaeological values should be encountered, the Nevada State Museum Archaeological Services or the Nevada Division of Archaeology and Historic Preservation, and the Bureau of Land Management District Archaeologist should be notified immediately.

Hall Mine Survey Final Report
12-138/1082/1087
April 27, 1979

Submitted by: Mary Rusco for Sheryl Clerico BS
Mary Rusco and Sheryl Clerico, Archaeological Technician

Approved by: Mary Rusco
Mary Rusco, Project Director

Attached are the project location map and site inventory forms.

Reference cited:

Federal Register
1979 National Register of Historic Places. Volume 44, No. 26, Part II, Tuesday, February 6.

Hester, Thomas R. and Robert F. Heizer
1973 Review and Discussion of Great Basin Projectile Points: Forms and Chronology. Publication of the Archaeological Research Facility, Dept. of Anthropology, University of California, Berkeley.

Seelinger, Evelyn
1978 Review of records and literature concerning archaeological and historic resources in the vicinity of the former Hall Mine, north of Tonopah, Nevada. Ms. on file Nevada State Museum, Project 18-40.

Figure 1

On File with Nevada State Museum

Figure 2

On File with Nevada State Museum

The Nevada State Museum
CAPITOL COMPLEX
CARSON CITY, NEVADA 89710
Telephone (702) 885-4810

ARCHAEOLOGICAL RESOURCES REPORT COUNTY: Nye

Project: Anaconda Hall Mine 230KV Power Transmission Line Survey Final Report (Project 18-69; Contract #1122).

Project Director: Mary Rusco

Reconnaissance Personnel: Primary Line: Field Supervisor, Sue Ann Monteleone; Dennis Bill, Bonita Brown, Margaret Brown, Elizabeth Budy, Carmen Kuffner, Shelly Moore, Don Zerga.

West Alternate: Field Supervisors: Jim Bunch, Barbara Fischer, Kris Parker; Lee Arnold, Dennis Bill, David Berger, Patty Bunch, Bill Ellison, Jenny Hunt, Susan Woodin.

Federal Antiquities Permit: 77 NV-097

State Antiquities Permit: 177

Dates of Field Examination: October 29 to November 4; November 9 to 15, 1979.

Date of Report: December 4, 1979

Map References: AMS Tonopah, Nevada 1:250,000 (1962)
AMS Millett, Nevada 1:250,000 (1962)

Primary Route: USGS San Antonio Ranch 15' (1964)
USGS Baxter Spring 15' (1963)
USGS Seyler Peak 7.5' (1971)
USGS Pablo Canyon Ranch 7.5' (1971)
USGS Round Mountain 7.5' (1971)
USGS Carvers SE 7.5' (1971)
USGS Carvers NE 7.5' (1971)
USGS Jet Spring 7.5' (1971)
USGS Wildcat Peak 15' (1960)
USGS Spencer Hot Springs 15' (1960)
USGS Mount Callaghan 15' (1956)

Alternate: USGS Carvers 7.5' (1971
USGS Carvers NW 7.5' (1971)
USGS Millett Ranch 15' (1956)
USGS Austin 15' (1956)

Legal Description: The primary route begins in T6N, R41E, SE¼ of SE¼ of Sec. 26. It proceeds northeasterly through T6,7N, R42E, T8,9,10N, R43E; T11,12,13N, R44E, T14,15,16,17,18N, R45E, to T19N, R45E, Sec. 13 (not surveyed by U.S. Lands Survey), where it joins an existing 230KV power transmission line. The proposed corridor is 120 ft.(36 m) wide, 60 ft. (18 m) on either side of centerline.

West Alternate: The west alternate route crosses the following townships: T11,12N, R42E; T13,14,15,16N, R43E; T17,18N, R44E. The corridor sampled is 1000 ft. (300 m) wide parallel to Highway 8A between its junction with U.S. 50 and Carvers Station, within and adjacent to the right-of-way for 8A.

Two corridors were inspected within the alternate route corridor: each 100 ft. (30 m) wide, one east and one west of Highway 8A. Two technicians walked transects approximately 15 m apart in each sample corridor. The Highway 8A right-of-way is 500 ft. (150 m) wide and the sample corridors are on the eastern and western edges and adjacent to the highway right-of-way.

Research Design: Inventory and evaluation of prehistoric and historic resources along the proposed primary and alternate route of the 230KV power transmission line to service the Anaconda Hall Mine property. No artifact collection was included in this design, pending final route approval by the Bureau of Land Management.

Survey Methods:

Primary route: Most of the 90 mile route was flagged approximately every one-half mile. Approximately three miles at the southern end of the route were not clearly flagged, causing some difficulties, and occasional flags along the route were out of sight in low spots, but on the whole, the line was regularly marked and readily followed.

The 120 ft. (36 m) wide corridor was surveyed by teams of two archaeological technicians, spaced approximately 60 ft. (18 m) apart. The entire length of the route was covered. Fieldwork began October 29, was interrupted for one week while flagging of the route from the Nye/Lander County line to the northern end was completed; work continued November 12, and was finished November 15. Travel time and access problems with the roads crossing the valley increased the time required to walk the 90 mile route.

The locations of all artifacts were recorded, all significant artifacts and sites were flagged and their relationships to Sierra Pacific flags or existing power poles were noted to facilitate later collection. No artifacts were collected.

Observed sites and artifacts were recorded on standard archaeological site inventory forms. Location of sites was plotted on USGS 15 and 7.5 minute maps. Site inventory records and project maps showing site locations are appended to this report.

Previous work in the area was reviewed. Project reports and site records were obtained from the Museum site files and from the Battle Mountain District of the Bureau of Land Management. Roberta McGonagle, Cultural Resource Specialist for the Battle Mountain District, visited the project team during reconnaissance of the West Alternate.

Area and Environmental Setting:

Primary route: The project traverses approximately 80 percent of the length of the Big Smoky Valley. It follows the eastern side of the valley, keeping almost entirely to the alluvial fan, from near the Hall Mine on the western side of the San Antonio Mountains, north to the end of the canyon, continuing about 2.5 miles north alongside Rye Patch Canyon to where the proposed line will join an existing 230KV power line.

The alluvial slopes at the southern end of the route feed Peavine Creek (intermittent) which runs southward to a large playa at the south end of the valley. This playa is the remnant of Pleistocene Lake Tonopah, whose highest levels reached elevations of 4770 and 4800 ft.(1 130 and 1440 m) (Snyder, Hardman and Zdenek 1964; Thomas 1977:4).

The proposed line runs northwest over a high point in the valley, at the northern end of the San Antonio Mountains and the southern ends of Toiyabe and Toquima Ranges. In this area, the route reaches an elevation of 6000 ft. (1800 m).

From there, the route continues northwest up the valley, gradually losing elevation. It crosses two running streams north of Round Mountain, Barker Creek and Moore's Creek, the only sources of fresh water currently available along the 90 mile route.

The northern half of the route passes another large playa, remnant of Pleistocene Lake Toiyabe, moving down into the edges of the former lake bed opposite Clipper Gap Canyon. The highest level of this lake was 5585 ft. (1602 m) (Meinzer 1915, 1917; Mifflin and Wheat 1979).

The route ends on the high terraces on the west side of Rye Patch Canyon, near the northern end of the Toiyabe Range.

The Big Smoky Valley is the depression resulting from the major uplifting of the mountain ranges surrounding it. The northern half of the valley is bordered on the west by the Toiyabe Range, and on the east by the Toquima Range. The southern part is bound by the San Antonio Mountains.

These ranges support piñon-juniper vegetation zones, while the broad alluvial fans support a Northern Desert Shrub community, and the valley bottom supports a Salt Desert Shrub community. The common plants noted along the alluvial fans crossed by the route are:

Shadscale (Atriplex confertifolia)
Little greasewood (Sarcobatus sp.)
Ephedra (Ephedra nevadensis)
Rabbitbrush (Chrysothamnus nauseosus)
Beavertail cactus (Opuntia sp.)
Cholla (Opuntia sp.)
Sagebrush (Artemisia tridentata) was only common at the northern end of the route.

The two live streams crossed by the route were lined with willows and other stream-side plants.

West Alternate: This route varies environmentally from the primary in that it is situated on the west side of the valley and passes areas of springs, including several thermal springs and streams leading from the Toiyabe Range. Common plants in addition to those already noted include:

Big greasewood (Sarcobatus vermiculatus
Buckbrush, Squawbrush or Buffalo Berry
(Sheperdia argentea)
Salt grass (Distichlis spicata)

Fauna present in the area include jackrabbit, coyote, hawk, and deer in the higher areas.

Historical Overview: The earliest known visit by Europeans to the Big Smoky Valley occurred in 1827 when the Jedediah Smith party passed through. They traveled along the south end of the Toiyabe Range, camped somewhere along Peavine Creek, then crossed the valley northeastward and left by way of Manhattan Gulch (Brooks 1977).

Later, in 1845, the John C. Fremont party passed south through the Big Smoky Valley enroute from the Humboldt River to Walker Lake. Fremont (1887) noted making three camps in the valley at "Basil's Creek, Boiling Springs and Moore's Creek". "Basil's Creek" has been determined to be Kingston Creek, "Boiling Springs" as Darrough's Hot Springs, and the "Moore's Creek" camp is in the vicinity of Smith's earlier camp on Peavine Creek (Hattori and McLane 1979).

Topographer James H. Simpson passed along the northern edge of the valley twice in 1859, establishing two wagon routes. One became the Pony Express route, the other, the Overland Stage Route (Carlson 1974:217). The Simpson Park Mountains and Simpson Park Canyon at the north end of Big Smoky Valley bear his name.

The Pony Express Route which ran in 1860, passed the northern edge of the Big Smoky Valley. The Overland Stage Route, which began in 1860, entered the northern part of the valley over Hickison Summit, swung around the south end of the Simpson Park Mountains and Cape Horn, where a station was established, then left north through Rye Patch Canyon and Simpson Park Canyon.

Silver and gold were discovered in the area in 1862 and the years shortly after, and by 1865, roads and stage stations were being established up and down the Big Smoky Valley. Along the eastern side of the Toiyabe Range, the major mining areas were Ophir, Kingston and Jett. Across the valley on the western slope of the Toquima Range were Northumberland, Manhattan, and Jefferson; Belmont and Monarch were across the Toquimas in Monitor Valley. In the southern part of the valley were the Liberty (La Libertad) and Potomac mines in the San Antonio Mountains (Paher 1970, Carlson 1974).

Major stage and wagon roads ran through the valley from Austin to Belmont, and south past San Antonio to Silver Peak and Lida. Other roads criss-crossed the valley to the mines on the east and west sides. The early cadastral survey maps of 1873, on file with the Bureau of Land Management, Nevada State Office, show the roads in use at the time. Interestingly, the major routes of 1873 are still the general routes of today's highways, and many of the secondary roads crossing the valley are still in use today. These roads are noted on the attached project maps.

A station at Birch Creek came into operation around 1864, and San Antonio on Peavine Creek began in 1865. By the 1870's, the Millett and Tate stations were also established on the west side of the valley, and Smith's Station was located centrally in the valley on the Austin to Belmont Road (Myles 1968; Paher 1970).

Ranching and farming (potatoes, etc.) began in the Big Smoky Valley by the 1890's. Salt for ore processing at the area's mills was procured from Spaulding's Salt Marsh, one of the valley's first industries (Myles 1968).

Early settlers in the valley were: Minnium; the Schmidt brothers (1870's); Charles Scheel, who built a brick house at the place now known as Millett (1873); the Chrysler family who ran the stage station at San Antonio, and later Hot Springs (Darrough's); Lognoz; Smith; the Millett brothers who lived on Twin River (Albion B. Millett was a State Senator from Nye County, 1889-1891); Spaulding; and Tate (Myles 1968).

Most of the mines along the Big Smoky Valley were depleted by the early 1900's or earlier, and the majority of the population dispersed to other areas. Then, silver was found near Tonopah, south of this project area, in 1900; and gold at Round Mountain in 1905, providing an economic base for the area through much of this century (Paher 1970).

Previous Research: Little was known about the archaeology of Big Smoky Valley prior to 1976 when the Bureau of Land Management undertook a reconnaissance of lands adjacent to springs in the Tonopah Resource Area (McGonagle and Waski 1978:7). Except for the brief report of fluted points from sites in the valley by the Campbells (Campbell and Campbell 1940), the village sites reported by Steward's informants (Steward 1938:109-110) represented the only published site information. Various private collectors are known to have artifacts collected from the area, including some well documented collections (cf. McGonagle and Waski 1978:7).

Thomas' (1973) settlement pattern study in the Reese River Valley to the west, his subsequent excavation and collection at piñon camp sites (Thomas and Bettinger 1976) and the work of Clewlow and others (Clewlow and Pastron 1972) at Grass Valley to the north, indicate the settlement pattern which most likely characterizes the Big Smoky Valley.

Steward noted that this valley was much drier than the adjacent Reese River Valley and its watershed. His informants reported only three villages, each adjacent to reliable water sources in Big Smoky Valley. In contrast, 41 villages were reported for the Reese River Valley (Steward 1938:100-110).

Thomas defined a dual central based wandering pattern for the Reese River Valley. Winter villages or camps were found in the piñon ecotone in the Shoshone and Toiyabe ranges; summer villages or camps, on the valley floor adjacent to the river. Other microenvironments - the arid sagebrush flats, the upper sagebrush-grass zone, and the pinon-juniper zone - were the location of various task-related sites and associated temporary camps. The preliminary results of archaeological reconnaissance in the southern part of Grass Valley yielded corroborative settlement pattern data. Although not as dry as Big Smoky, Grass Valley lacks a central, reliable stream, and has a playa remnant of a pluvial lake. Specifics of settlement patterning in the two valleys can be expected to be similar. Clewlow and Pastron (1972:15) found that the largest occupation sites were near springs or other permanent water sources and also near well-watered areas which supported abundant stands of seed plants. Other kinds of sites were found associated with specific geographic features -- rock outcrops, game trails, wetlands, etc.

McGonagle and Waski (1978:10) found occupation sites associated with 80% of the springs they visited. Subsequently, other cultural resource studies by and for the Bureau of Land Management have yielded results which indicate a site distribution similar to that reported by Clewlow and Pastron. Springs and the larger intermittent streams are the locus of medium to large settlements, characterized by the presence of large amounts of flaked stone tools and debitage, ground stone tools, and hammerstones, as well as clusters of firecracked rocks (Ball 1978a; McGonagle 1979; Welch 1978a).

In other parts of the valley floor, including the sagebrush-grass or greasewood-grass covered slopes and the upper sagebrush zone, either no sites or very small sites (isolated finds or small lithic scatters) were found (*cf.* Ball 1978b; Mayro 1978; McGonagle 1976, 1978a-e; Ripple 1978a, b; Wallof and Jurgwirth 1978; Welch 1978b). Sites in this project area are shown on Table 1.

The presence of settlements in piñon ecotone zones along the east slopes of the Toiyabe or west slopes of the Toquima ranges has not been determined. Virtually all of the cultural resource studies undertaken in this valley during the past two years have been on the valley floor or sagebrush-grass covered alluvial slopes. Until the piñon-juniper zone in the Big Smoky watershed has been adequately sampled, the extent to which the Big Smoky supported a dual central based wandering pattern, as defined by Thomas for Reese River, cannot be determined.

Except for the fluted points alluded to above, no evidence of occupation earlier than the Medithermal, that is, before about 4500 B.P. has been reported. Because no sites have been excavated, chronological information is limited to finds of temporally diagnostic projectile points on the surface. Prior to

Prehistoric Site Number	Site Type	Size	Distance from Water	Other Significant Associations
26Ny567	settlement	large	on site	pottery
266	task site	one artifact		
265	task site	one artifact		
264	task site	one artifact		
302	settlement	medium	on or near site	pictographs
562	[illegible]	[illegible]		
26La 1	settlement	large		petroglyphs
8	settlement	large		pottery
9				petroglyphs
10	settlement			
11	settlement	large		
23	task site	small		
24	task site	small		
25	settlement?	large		
26	settlement	large		pottery
27	settlement	large		
28	task site	one artifact		
Historic				
26Ny603	historic	cabin		
604	historic	wagon		

Table 1. Previously Recorded Sites in the Big Smoky Valley Area.

[illegible]

the project reported here, pottery has been reported from only one site in the valley (26Ny567).

Results: Evidence of past human presence along the proposed primary and alternate routes consist of 32 prehistoric sites and 2 historic sites. The archaeological sites recorded during this investigation are summarized in Tables 2 and 3. Sites where large numbers of flaked stone tools and debitage, ground stone, hammerstones, and clusters of firecracked rock were observed, are classified as settlements. Sites of fewer than eight artifacts, and isolated finds of tools or projectile points, are classified as task sites (very small). Small lithic scatters, with two or more kinds of tools and debitage, but no ground or pecked stone artifacts or clusters of firecracked rocks are classified as task and/or temporary camp sites.

Most of the sites found, 28 , fall into the task/temporary camp categories. Four large settlements were found along the west alternate. Two of these very small sites (La1189 and 1190) are located within 1 km of a large settlement site (La93). They may be associated with the larger settlement site. Most of the very small sites are located from .2 to 2.0 km from a permanent water source. In contrast, the large settlement sites are located adjacent to water sources and within 2 km of other water sources and wetlands.

Three projectile points found along the primary route are identifiable as to type. One falls into the Humboldt series, one is an Elko-eared, and one fits the Elko series. No projectile points were found on the survey of the west alternate.

Historic evidence observed includes one small trash dump on the primary route in the vicinity of Round Mountain, a historic mining area, and a cluster of stone buildings and foundations on the east side of Highway 8A, along the west alternate.

These buildings have been identified as the ruins of the Minnium Stage Station, discussed in the previous historic overview. The buildings lie approximately 550 feet (183 m) from the edge of pavement, just outside the corridor at the west alternate. Some debris from the buildings lies within the corridor.

Prehistoric Site Number	Site Type	Size	Elevation	Distance from Water	Other Significant Associations
26Ny2014	Task site	one artifact	6020 ft.	2.5 mi to spring	
2016	"	small	5840 ft.	4 mi. to mtn.streams	
2017	"	one artifact	5920 ft.	200 m to Barker Cr.	
2018	"	one artifact	5920 ft.	immediate-Barker Cr.	
2019	"	one artifact	6080 ft.	3.5 mi. to spring	
2033	"	one artifact	6000 ft.	2.5 mi. to spring	
26La1168	Task site	small	5581 ft.	3 mi to spring;	Possible playa association
1169	"	one artifact	5630 ft.	2.75 mi-Spencer Hot Spring;	Possible playa association
1170	"	small	5850 ft.	3 mi. to spring	
1171	"	small	6000	2 mi. to spring	
Historic					
26Ny2015	Dump	small	5980 ft.	1.75 mi. to spring	Round Mountain mining area (1905)

Table 2. Archaeological Sites on Primary Route 230KV Power Transmission Line to Anaconda Hall Mine.

Prehistoric Site Number	Site Type	Size	Elevation	Distance from Water	Other Significant Associations
26La1188	task site	very small	5768 ft.	2 km	
La 933	task site	large	5640 ft.	on site	near wetlands
La1189	task site	large	5660 ft.	20 m	
La 932	settlement	large	5660 ft.	on site	near wetlands
La1190	task site	very small	5665 ft.	200 m	
La1191	task site	very small	5760 ft.	2 km	
La1192	task site	very small	5760 ft.	--	
La1193	task site	very small	5850 ft.	--	
Ny2020	task site	very small	5525 ft.	--	
Ny2021	task site	very small	5600 ft.	1 km	
Ny2022	task site	very small	5600 ft.	1.5 km	
Ny2023	camp/task	small	5520 ft.	.5 km	
Ny2024	task site	very small	5530 ft.	on site	
Ny2025	task site	very small	5580 ft.	200 m	
Ny2026	task site	very small	5600 ft.	300 m	
Ny2027	task site	very small	5580 ft.	--	
Ny2028	task site	very small	5580 ft.	--	
Ny2029	task site	very small	5670 ft.	.5 km	
Ny2030	task site	very small	5700 ft.	1 km	
Ny2031	settlement	large	5640-80 ft.	on and near site	less than 2 km from other springs
Ny2032	task site	very small	5720 ft.	.8 km	
Ny 563	settlement	large	5640-5720 ft.	on and near site	less than 2 km from other springs

Table 3. Archaeological Sites along West Alternate Route for 230KV Power Transmission Line to Anaconda Hall Mine.

Other historic evidence along the west alternate is probably incorporated in the ranches and settlements which are still occupied. Early maps and records indicate locations, but clarification of all the historic resources along the west alternate would require a major ethnohistorical research and contact with current owners and occupants.

Recommendations: The proposed power transmission line route crosses a series of 10 small or very small sites classifiable as task sites. Most of these are within 2 or 3 km of permanent water sources, where settlement sites probably occur. These sites can and have yielded archaeological information which is important to understanding the settlement-subsistence pattern of Big Smoky Valley. They are, therefore, eligible for the National Register of Historic Places, according to criteria listed in the Procedures for the Protection of Historic and Cultural Properties (Title 36, 800.10). Preservation of these sites by modifying the right-of-way would probably endanger other similar sites. Mitigation of adverse effects to the cultural resources of Big Smoky Valley by construction along the proposed route could be accomplished adequately by surface collection, curation of specimens, and preparation of a report of the study.

The western alternate route crosses 21 prehistoric archaeological sites and numerous historic sites. Before mitigation procedures could be recommended, further evaluation of three large settlements (La932, 933, 934; Ny2031 and Ny563) would be required, including test excavations, to determine the depth of cultural deposits at the sites. The western extent of Ny563 and Ny2031 has not been determined. Avoidance of these sites by moving the right-of-way farther up the alluvial slope might protect the sites from adverse effects.

The protection of cultural resources in the Big Smoky Valley could best be accomplished by selection of the proposed route. However, the prevention of adverse effects to major settlement sites could be accomplished by moving the route up the slope. Mitigation of adverse effects could then be accomplished by surface collection as described for the very small sites in the proposed route.

Mitigation of the one historic resource along the proposed power line could be accomplished by surface collection, in much the same manner as the prehistoric resources.

The historic resources along the west alternate are much more complex, and less readily delineated. Further evaluation of the limits (surface or subsurface) of the Minnium Stage Station would be necessary. Further evaluation of several areas under private ownership may also be necessary.

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WORKS CITED

Ball, H.G.
1978a Cultural resource report: RO Ranch unintentional trespass act land transfer. Photocopy. Bureau of Land Management, Battle Mountain, and Nevada State Museum filed.

1978b Cultural resource report: San Antonio unintentional trespass act land transfer. Photocopy. Bureau of Land Management, Battle Mountain, and Nevada State Museum files.

Brooks, G.R.
1977 *The southwest expedition of Jedediah S. Smith,* Glendale, California: the Arthur Clark Co.

Campbell, E.W.C. and W.H. Campbell
1940 A Folsom complex in the Great Basin. *The Masterkey* 14(1):7-11.

Carlson, H.S.
1974 *Nevada Place Names.* Reno: University of Nevada Press.

Clewlow, C.W., Jr., and A.G. Pastron
1972 The Grass Valley archeological project: preliminary investigations. *The Grass Valley Archeological Project: Collected* Papers, Paper Number 2, edited by C.W. Clewlow, Jr. and M.K. Rusco. Reno: Nevada Archeological Survey.

Hattori, E.M. and A. McLane
1979 *Report of a BLM Class III cultural resources inventory of two seismic lines in Big Smoky Valley, Lander County, Nevada.* Reno: University of Nevada, Desert Research Institute.

Mayro, L.L.
1978 An evaluation of archeological resources in the Big Smoky verification site: Nye, Esmeralda Counties, Nevada. Photocopy. Santa Barbara, California: HDR Ecosciences.

McGonagle, R.L.

1976 Cultural resources report: Gravel sale - Standard Slag. Photocopy. Battle Mountain: Bureau of Land Management.

1978a Cultural resources report: 8A Fence/ Tonopah. Photocopy. Battle Mountain: Bureau of Land Management.

1978b Cultural resources report: Blackbird pipeline -- N6-R-0036. Photocopy. Battle Mountain: Bureau of Land Management.

1978c Cultural resources report: San Antonio UTA cultural resource mitigation. Photocopy. Battle Mountain: Bureau of Land Management.

1978d Cultural resources report: RO Ranch UTA mitigation. Photocopy. Battle Mountain: Bureau of Land Management.

1978e Cultural resources report: Big Smoky Valley soil pits (backhoe trenches). Photocopy. Battle Mountain: Bureau of Land Management.

1979 Cultural resources report: Telford work land exchange, detailed archaeological reconnaissance of selected lands. Photocopy. Battle Mountain: Bureau of Land Management.

and L.L. Waski

1978 Archaeological survey of springs: Tonopah resource area. *Technical Report Number 2*. Reno: Bureau of Land Management.

Meinzer, O.E.

1915 Ground water in Big Smoky Valley, Nevada. *U.S. Geological Survey Water-Supply Paper* 375-D:85-116.

1917 Geology and water resources of Big Smoky, Clayton, and Alkali Spring Valleys, Nevada. *U.S. Geological Survey Water-Supply Paper* 423.

Mifflin, M.D. and M.M. Wheat

1979 Pluvial lakes and estimated pluvial climates of Nevada. *Nevada Bureau of Mines and Geology Bulletin* 94.

Myles, M.T.
1968 Smoky Valley stories. *The Nevadan*, 6 parts. Dec. 22, 1968 - Apr. 27, 1969.

Paher, S.W.
1970 *Nevada Ghost Towns and Mining Camps.* Berkeley: Howell-North Books.

Ripple, R.
1978a Cultural resources report, historical and archeological: Stockpile NY 12-2. Photocopy. Carson City: Nevada Highway Department.

1978b Cultural resources report, historical and archeological: A proposed gravel pit and haul road located 8 miles north of Carvers on SR 8A. Photocopy. Carson City: Nevada Highway Department.

Snyder, C.T., G. Hardman and F.F. Zdenek
1964 *Pleistocene Lakes in the Great Basin.* Washington, D.C.: U.S. Geological Survey, Miscellaneous Geologic Investigation Map 1-416.

Thomas, D.H.
1973 An empirical test for Steward's model of Great Basin settlement patterns. *American Antiquity* 38 (2):155-176.

1977 Preliminary report on archaeological investigations at Pleistocene Lake Tonopah, summer 1977. Photocopy. Carson City: Nevada State Museum.

and R.L. Bettinger
1976 Prehistoric piñon ecotone settlements of the Upper Reese River Valley, central Nevada. *Anthropological Papers of the American Museum of Natural History* 53(3):263-365. New York.

Wallof, K. and M. Jungwirth
1978 Cultural resources report, historical and archaeological: Cape Horn M & T, E.A. 70918 SP-PE79(2). Photocopy. Carson City: Nevada Highway Department.

Waski, L.L.
1977 Addendum to BLM 6-81(N). Photocopy. Battle Mountain: Bureau of Land Management.

Welch, P.
1978a Cultural resources report: Millet Ranch UTA - NV-060-EAR8-62. Photocopy. Battle Mountain: Bureau of Land Management.

1978b Cultural resources report: Big Smoky Valley soil pits. Photocopy. Battle Mountain: Bureau of Land Management.

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